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THE NEED OF ORAL PROPHYLAXIS AND SOME RESULTS OBTAINED BY IT.

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MICHIGAN STATE DENTAL ASSOCIATION, AT DETROIT,

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Prevention is the spirit of the times in business and in the professions. Large corporations employ the best minds in the legal profession whose duty it is to guard against and prevent conditions which may result in loss of life, time and capital. The medical profession is devoting a very large portion of its best thought toward the prevention of disease. Only recently an article appeared in a medical journal, in which was advocated the monthly examination of apparently healthy persons, thereby being able to detect disease in its incipient stage, remove the cause and allow the system to return to its normal condition of resistance. Some of the larger cities require the frequent medical examination of all children attending the public schools, and no child is permitted to enter a school unless he holds a certificate from a medical examiner.

A similar examination of the mouth and teeth of each pupil by a competent dentist would save many from suffering, and instruction in the care of the mouth would prevent in the schools the spread of many diseases, germs of which breed in an unclean mouth.

CONDITION OF THE HUMAN MOUTH.

There exist pathological conditions in the human mouth, a correction of which would mean much toward lessening the necessity for mechanical substitution of partially or wholly destroyed dental organs. Also the general health would be so materially advanced that it is surprising the dental profession is only be-

ginning to realize the possibility of correction and prevention of these conditions.

DENTISTS HAVE NOT RECOGNIZED AND REMOVED THE CAUSES OF MOUTH DISEASES.

When a patient has presented himself with teeth seemingly melting away with the white, rapid decay, he was readily told that he had very soft teeth, and that he could not have gold or other so-called permanent fillings inserted, for such fillings would not last in his mouth. Rarely has the dentist been careful to remove all accumulations, seen and unseen, which were on and about the teeth in such a mouth before beginning his prided work of filling. The condition of lactic acid fermentation was allowed to remain uninterrupted until all the work of filling had been accomplished, and then the disagreeable operation of "cleaning the teeth" may have been done in a very perfunctory manner. The dentist may have prescribed an alkaline mouth wash, and it may have been productive of considerable temporary good by neutralizing a portion of the acids present. But it did not remove the media upon which the germs of fermentation were growing, neither did it destroy the germs themselves. So, too, the patient suffering from pyorrhea was told his case was hopeless, that any treatment would be merely palliative, and that it was only a matter of time before he must lose his teeth and substitute an artificial denture.

Let us think for a moment how the teeth were intended to be used, what is nature's environment for them, and then, how they are used and their present environment.

NATURE'S PLAN.

Man in his primitive state was strong in every organ and part of his body. All tissues received vigorous use, and as proper use strengthens so they were maintained in health. His foods, both flesh and vegetable, at first raw, but at later periods cooked, were always of a coarse, fibrous nature, nearly devoid of taste unless thoroughly masticated and required vigorous use of his teeth to reduce them for deglutition. During this process, that of mastication, it was necessary for the peridental membrane to withstand many pounds of intermittent pressure from the teeth, the gums much massaging, and the enamel much friction. It was their

normal exercise which produced a healthy circulation and resistance in the parts.

From the nature of his foods there was little of a sticky, tenacious substance to adhere to his teeth, and were it to do so, it could not remain longer than until his next meal, for then came the broom-like sweeping over his teeth of the coarse foods again completely removing any particles left from his previous meal. True, he undoubtedly had several kinds of bacteria in his mouth, but as the culture media were scarce, they could not multiply and form acids and poisons rapidly enough to do him and his mouth tissues injury. In other words, he had perfect health and perfect teeth given him, he gave the latter exercise of a proper kind, and did not surround them with irritants and those substances which tend to produce a pathological condition.

Now let us contrast the case of a person living in the present state of civilization.

In a very large percentage of cases, the person to-day has imperfect occlusion of his teeth, consequently, to begin with, he cannot give his teeth their proper exercise, were his foods suitable, and his inclination so to do.

The most of his food is so finely prepared, thoroughly cooked, and highly seasoned, that when taken into his mouth, there is little desire to use the teeth on it, and most of it is so rich that if it were much masticated, it would immediately become sickish to the taste.

The habit of hurrying in everything he does to-day, man applies to his eating also.

The consistency of the foods is mostly of a sticky, doughy, tenacious nature, adhering readily to the teeth, and offering no resistance to them during mastication. The cooked starches combine readily with the other accumulations and the secretions of the mouth to make the most suitable media for the growth of bacteria. Consequently there is constantly more or less of a coating of this material upon many if not all surfaces of the teeth of every one to-day. Were there sufficient friction of mastication these accumulations would be worn off frequently, but there are many locations on and about the teeth which retain their coatings months at a time. Of course, some portions of the accumulations are worn away and pass into the stomach with the food, but they are continually replaced by other and fresh media suitable for bacterial growth.

The lactic acid continually formed by the fermentation of the starches finally softens the enamel of the teeth and caries begins. The gum also becomes inflamed by the same cause and from the toxins formed in the putrefaction of the nitrogenous matter. The teeth and gums in this condition being sensitive, mastication is now entirely avoided in that locality where there was at least partial use of the teeth before. After use ceases in any locality, the coatings on the teeth increase.

Now we started with a condition which would not permit of normal, healthful use of the teeth, caused first, by malocclusion; second, by the consistence and richness of the foods; and third, the habit of rapid eating, and we end with complete disuse of the teeth in a certain locality, due to sensitiveness from caries and inflammation of the gingiva, and with lowered resistance in all of the tissues of the mouth.

NUTRIENT MEDIA FOR MICROORGANISMS IN THE MOUTH.

Now let us see what this sticky, slimy material consists of which is found in a greater or lesser degree on the teeth of every one today, and is the soil for the growth of many microorganisms. W. D. Miller says: "The organic and inorganic substances found in the mouth, which may serve as nutriment for microorganisms are the following:

1. Normal saliva.
2. Buccal mucus.
3. Dead epithelium.
4. Dental tissue softened by acids.
5. Exposed pulps.
6. Exudations of the gums, conditioned by the irritation of deposits, etc.
7. Accumulation of particles of food."

The last-named component in the nutrient media, particles of food, is, of course, the most abundant and subject to the most variation.

These seven substances in combination seem to form a most ideal pabulum in the mouth for the growth of bacteria, and many microorganisms grow and thrive in the mouth which no one has as yet been able to cultivate artificially.

MANY VARIETIES OF BACTERIA IN EVERY MOUTH.

Miller has isolated over a hundred varieties of bacteria from the mouth. There are found constantly in every human mouth at least six different varieties, and in every mouth there are many others which may be regarded as more or less transient.

The soft deposits are continually loaded with these bacteria, which vary in quantity and kind with the opportunity of entrance to the mouth, and with the abundance and quality of the deposit, for many of the mouth bacteria are very sensitive to a change of media.

LACTIC ACID AND POISONS PRODUCED BY THE BACTERIA.

A large percentage of these bacteria are capable of producing fermentation and lactic acid in the presence of carbohydrates, and many others generate products during their growth on the albuminous substances the same as those found generally in the putrefaction of nitrogenous matter.

DECAY OF THE TEETH AND INFLAMMATION OF THE SOFT TISSUES,
CAUSED BY LACTIC ACID AND OTHER CHEMICAL IRRITANTS.

Now we know that the products of fermentation and putrefaction produce intense irritation in the soft tissues, and that lactic acid is accountable for the solution of enamel in the commencement of caries at least. This we learn from the researches of Miller, Black, Williams and others, as also that bacteria produce a gelatinous substance which adheres to the surfaces of the teeth, and that the acids there produced are held in close contact with the enamel. These bacterial coatings or plaques are always closely associated with caries.

These bacterial films attach to all teeth, but especially to those surfaces not worn by mastication, and unclean teeth. Miller says: "We may put it down as an axiom that films will be found wherever the surface of a tooth is not kept free from deposits of mucus, epithelium, food, etc." He further says: "It would be very difficult to find a tooth which did not show bacteria adhering to the surface at some point or other."

To further emphasize the fact that the coatings, deposits and films are injurious to the teeth, let me quote from an article by J. Leon Williams, which appeared in the *Dental Cosmos* for April, 1899: "The fluctuations in the decay of the teeth which we have

so long observed are not due to change in tooth structure, an hypothesis which could never be held for a moment by those who understand how slow the changes in dentin are and how impossible any true physiological change in enamel must be, but to changing conditions of the environments of those microorganisms which constitute the sole exciting cause of dental caries."

Undoubtedly there are other factors in the progress of caries, such as the natural resistance in the tissues themselves, but, nevertheless the reduction and removal of the acid-forming material is accompanied with lessening, if not complete cessation, of caries. The factor of the individual's care of his own mouth is not taken into consideration, for while he may do much toward keeping it in a state of health when once it is made so by treatment, he cannot bring about a healthy condition himself.

HARD AND SOFT DEPOSITS—THEIR RELATIVE INFLUENCE.

The dentist has long looked upon the calcareous deposits as the chief, if not the sole, cause of irritation to the gingiva and pericementum. This, I think, is largely a mistake, for while these deposits are very irritating it is the fermenting and putrefying soft accumulations which are the most vicious in their action on the soft tissues. The hard deposits make a roughened surface which serves the better for the attachment of the softer and more irritating ones.

The removal of the deposits from the teeth is attended with some lessening of the irritation in the gums and pericementum, but the most marked change is noticed when the soft, smeary coatings and bacterial films are properly removed, then the inflammation rapidly subsides.

FERMENTATIVE AND PUTREFACTIVE PRODUCTS IN THE MOUTH AND THEIR INFLUENCE, LOCAL AND SYSTEMIC.

The whole mucous membrane of the mouth and pharynx is lowered in its resistance to disease by the constant presence of fermentative and putrefactive processes and products.

It has been proven that there are fewer bacteria in the mouth after a meal than before, and the swallowing of mouth accumulations containing microorganisms and their products cause much disturbance not only of the digestive tract but of the whole system. I quote as authority for this statement Miller, "Micro-

Organisms of the Human Mouth," and "Dental Pathology," by Burchard, revised by Inglis. In my own practice during the past year a patient under treatment for pyorrhea alveolaris has been very much relieved of intestinal trouble with which he had been suffering for at least two years.

The appetite is largely dependent upon the condition of the mouth. There are cases on record where there has been complete loss of appetite, due to fermentative and putrefactive processes in the mouth.

I think we will grant that it is necessary to reduce the fermentation and putrefaction continually taking place in the oral cavity, but how shall it be done?

ANTISEPTICS OF LITTLE OR NO AVAIL IN THE MOUTH.

The use of antiseptics for this purpose has been productive of but little good, because the strength of solutions permissible in the mouth is not sufficient to destroy many of the bacteria, unless allowed to remain several minutes, and even then the solutions will not penetrate and remove the coatings. The only effectual way of reducing the number of microorganisms in the mouth is by removing the media upon which they grow.

DR. RIGGS AND HIS METHODS.

While Dr. Riggs believed not only in the successful local treatment of the disease which bears his name, but, also, that the mouth could be so carefully treated that decay of the teeth be entirely prevented, his methods and ideas seem not to have been grasped by the profession. Therefore the successful results which he claimed have seldom been produced by them.

DR. SMITH'S METHODS SUCCESSFUL.

It seems to have been left to Dr. D. D. Smith of Philadelphia to evolve a systematic method of detecting and thoroughly removing all accumulations and bacterial coatings from the teeth, stimulating the dental organs and maintaining all the mouth tissues in a state of health. He relies not upon medicaments, but upon a method which is most like nature's own way of freeing the teeth of injurious accumulations. It is that of friction from wood charged with an abrasive material sufficient to cut through the tenacious coatings covering the teeth. This treatment is applied by hand, for one must rely upon the sense of touch to determine the condition

of each and every tooth surface. The most injurious materials upon the teeth are invisible, so a cultivated sense of touch is necessary to distinguish and remove them.

Dr. Smith calls this treatment prophylaxis treatment as distinguished from prophylactic treatment which embraces the use of therapeutic remedies.

To give his own definition: "Prophylaxis is an art or surgical treatment involving manipulative effort, as distinguished from the administration of a systemic medicament or a therapeutic remedy. Hence, oral prophylaxis implies surgical instrumentation, or treatment of the mouth and teeth in contradistinction to a germicide, a wash, or any form of medication for the prevention of disease in the oral cavity."

He further says: "The treatment consists of enforced, radical and frequent change of environment for all teeth and all mouth conditions, and the maintenance of perfect sanitation for the oral cavity."

To be more specific, the treatment is, first, the most careful and thorough removal of all calcic, solid and semi-solid deposits from all exposed surfaces of the teeth and from under the free margins of the gum, using instruments principally of a file nature.

Second, with flattened, spatula-shaped orange wood points in hand porte polishers, charged with finely powdered pumice stone, every exposed surface of each tooth is polished until the slippery, slimy feeling disappears, and a smooth surface of enamel is obtained. This vigorous rubbing of the teeth and massaging of the gums gives a very perceptible stimulation to the parts, and after a few treatments is very pleasant to the patient.

RESULTS NOT OBTAINED WITHOUT FREQUENCY OF TREATMENT.

This radical changing of the environment of the teeth is persisted in with frequency, varying with the needs of the case, from every third day to once a month. I find that the average untreated mouth is brought into a comparatively healthy condition with a treatment once a week for from three to five times, and then once a month.

To maintain the mouth in good condition, a month seems to be as long as it should go without a treatment.

One, two or three treatments does not constitute prophylaxis. It

is the constant watching, guarding and maintaining the mouth in a condition of health which constitutes oral prophylaxis.

INSTRUCTION OF PATIENT AND ENLISTMENT OF HIS COOPERATION.

It includes also the instruction of the patient, insisting that he cooperate with the dentist by the use of the pick, the floss, and the tooth brush and powder. Without his help the operator cannot attain the most satisfactory results. The patient rarely, if ever, has received any definite idea in the personal care of his mouth.

The frequency of treatment is one of its greatest virtues, for thereby no deposit can remain for any length of time, and the tissue is repeatedly stimulated and given opportunity to recover from hurtful influences.

Again to quote Dr. Smith: "The prophylaxis treatment, as yet but very imperfectly understood by its friends, has been charged as merely a form of tooth-cleaning; far more than this, it is a manipulative process that positively relieves the teeth from a virulent infection and introduces a stimulation most beneficial to their internal and external life. If a tooth-cleaning process, it is one of profound significance."

SPECIFIC RESULTS OF ORAL PROPHYLAXIS.

As to specific results obtained in the carrying out of oral prophylaxis, we find that it does prevent decay of the teeth, gingivitis and pyorrhea alveolaris, and will cure most cases of pyorrhea if not advanced too far.

It will reduce inflammation in the soft tissues of the mouth.

It lessens sensation in teeth in all localities, especially at the cervix, and checks erosion.

A change in the appearance of the teeth for the better is produced, giving them a brilliancy and more life-like appearance than is seen in untreated teeth.

Much disturbance of the digestive tract is markedly lessened, if not entirely cured, by the adoption of prophylaxis methods.

The breath loses its disagreeable odor from the reduction of putrefactive processes in the mouth, and salivary secretion becomes normal.

Thorough mastication creates a desire for the simpler foods, and prophylaxis places and keeps the mouth in such a comfortable condition that food taken into it is masticated from the pleasure

it gives; whereas, food taken into an unhealthy mouth is hurriedly passed, almost unchanged, into the stomach, except to be somewhat contaminated by infectious material.

Resistance to infectious diseases is increased by lessening the number of germs in the mouth and raising the vitality of its tissues.

One great result obtained is the interesting of the patient in the care he gives his teeth himself and educating him to a keen sense of any uncleanliness in his mouth. He cannot know the difference between a healthy mouth and an unhealthy one until he has been under treatment for a time.

It is difficult for the dentist who has not followed prophylaxis methods to realize the far-reaching results obtained by them, but a year's conscientious attention to this work will fully convince him that there is no service in dentistry of greater importance to his patient and none more gratifying to himself.

THE ETIOLOGY AND ELIMINATION OF DIABETES.

BY G. LENOX CURTIS, M.D., NEW YORK CITY. AN ABSTRACT OF A
PAPER READ BEFORE THE AMERICAN ELECTRO-
THERAPEUTIC ASSOCIATION.

Contrary to all accepted authority, the author of this remarkable paper contends that *diabetes is never a primary disease*, but is merely, he declares, a frequent concomitant symptom or sequela of either an inherited or acquired condition of the system which is primary and which is as amenable to *appropriate treatment* as any ordinary disease.

The unsuccessful and unsatisfactory results which, up to the present time have attended all proposed methods of treatment, are attributed to the fact that its pathogenesis has not been properly understood.

Derangements of the liver, the kidneys, the nervous system and the spleen have, each in turn, been considered the offending cause of this most serious affection and there is probably no case which does not exhibit a lesion of one or more of the organs mentioned. But as "the immediate cause of diabetes is something which interferes with the proper oxidation of certain elements of food, and as the presence of sugar in the urine occurs from, or is

accompanied by, lesions in organs differing greatly in structure and function, may there not be some common cause which, owing to an inherent or acquired weakness of one or the other of the organs mentioned, is able so to interfere with its normal action that oxidation is inhibited to a degree sufficient to induce the affection we are considering."

The author not only believes this view of causation to be correct, but he is satisfied that he has discovered the common cause—"the disturbing element which is responsible for the existence of every case of diabetes, irrespective of the nature or location of the lesions to which it most directly relates."

"This common and potent cause is syphilis—that Nemesis of evil doers, which ruthlessly invades every organ and tissue of the body and which with its blighting touch vitiates every secretion and deranges every function."

"This discovery is not the forced assumption of a theory; it is one of the results of the observations and investigations begun twenty-five years ago and carried on for a long period, for the purpose of discovering the cause of interstitial gingivitis, a suppurative disease of the alveolar process."

"I found that a great many of those afflicted with gingivitis also suffered from diabetes. Finally, I discovered that in all patients affected with interstitial gingivitis, of systemic origin, syphilis, either inherited or acquired, could be traced, and that in spite of careful and thorough surgical and dental treatment a permanent cure could not be effected until the patient was subjected to a course of anti-syphilitic treatment."

The diagnosis cannot always be satisfactorily made from the history of the case, but "fortunately there are ways of determining the existence of syphilis independently of any history the patient may give. Syphilis never invades the system unaccompanied by telltale signs of its presence. The most important and reliable of these signs are: 1st, the eschar of Curtis, which may be seen upon the surface of the gums, cheeks, tonsils, pharynx, and sometimes, upon the cornea and sclera (Note A), and 2nd, the

Note A.—This infallible diagnostic sign of syphilis was discovered by me over 16 years ago. I fully described it in a paper entitled "Syphilitic Localosis Alveolaris," which was read before the American Medical Association in 1898.

syphilitic spores which the microscope reveals in the freshly-drawn blood. The latter sign is of special importance because the presence of spores is not only positive evidence that the suspected disease exists, but their disappearance later, under the influence of appropriate treatment, is indisputable proof that the specific poison has been eliminated and, consequently, that the treatment may be safely discontinued."

"Since diabetes is never a disease *per se*, but merely an occasional accompanying symptom or sequela of syphilitic infection, the best treatment is that which will most readily and thoroughly eliminate the specific poison which has caused it."

The most reliable and satisfactory treatment is that supplied by electro-ozonation. A brief outline-description of the apparatus which supplies electro-ozone is given. It "consists, practically, of an ozone generator fed by a high tension coil which multiplies the voltage of the commercial current a million or more times, and practically eliminates all amperage. To the generator is attached brushes or corrugated wires, from which ozone is generated in large quantities, and, by a wire coil, a Geisler or other vacuum tube is connected, through which ozone is forced into and through the body. Connected with the apparatus is an electric cabinet which generates light and heat coupled with ozone."

Although treatment by electro-ozonation alone is able to eliminate every vestige of syphilitic taint from the system, still, in order that the patient may have the benefit of the eliminative effects some drugs are able to produce, such alternatives as mercury and iodide of potash and such tonics as iron and veratrum viride are generally prescribed in addition.

While the doctor is convinced that anti-syphilitic treatment by drugs alone is sufficient, in many cases, to eradicate both syphilis and diabetes in their initial stages, he is satisfied that a large percentage of such cases is incurable without the aid afforded by the ozone current.

During the past seven years 20 cases have been treated by the method advocated. "All of them had either acquired or inherited syphilis. With the exception of two, all were restored to health and every symptom of diabetes eliminated. Of these exceptions one was lost sight of and the other was suffering from epithelioma.

The average time required to bring this result was about three months. The sugar usually disappeared from the urine by the end of the second month. In only one of the cases successfully treated has there been any return of the sugar or of any other symptom. In this case, after several days of high living and alcoholism, a mere trace of sugar was discovered. "Otherwise, the patient, who, when first treated, was invalided and whose urine contained 9 per cent of sugar, is now in robust health."

This result, in the opinion of the doctor, is sufficient not only to substantiate his claim that he has discovered the real cause of diabetes, but also to demonstrate that this affection need no longer be considered incurable.

In regard to the restrictions of diet so irksome to the patient, but so universally believed to form an indispensable part of all successful treatment, the doctor, under the method of treatment he pursues, finds them entirely unnecessary.

"Allowing," he says, "that the sugars and starches are the food elements from which the system derives the greater part of its vital energy, it seems to me that their restriction is more prejudicial to an invalid than to a person in a state of health. Under no circumstances do I enjoin my patients from using the carbohydrates freely, and it is to this fact that I attribute their comparatively rapid recovery, for so great is the nutritive power of electro-ozonation over the processes of digestion, assimilation and elimination that, under its influence, the system is able to derive all of the nutritive benefits these highly important foods are able to bestow."

In conclusion, the doctor urges physicians "to test this method of treating diabetes." If electro-ozonation is not available, use the ordinary anti-syphilitic treatment, but if the two can be used conjointly the desired results will be not only more satisfactory, but more speedily attained.

ARE DENTAL METHODS AS VARIED AS THEY SHOULD BE?

BY J. H. MORRISON, D.D.S., CONNERSVILLE, IND.

In view of the great variety of materials, instruments and methods that go to make up modern dentistry, are the methods applied

by the average dentist in his everyday practice as varied as they should be?

I would not for a moment raise such a question, if to do so meant to imply that any lack in this regard was the result of a want of knowledge or skill. I have no ambition to review the subject of dental training and education, for I take it that the average dentist is as well equipped for his calling, and makes as few mistakes, perhaps, as the members of other professions. Neither would I suggest an overhasty adoption of the thousand and one methods now constantly claiming his attention. I know too well what it means to add to the care of the busy dentist or to his armamentarium, the care of which is already no little burden, but means and methods are multiplying until the careful weighing and selection of his methods has come to be a very important part of a dentist's work. Perhaps my question had better be stated: Is the basis upon which we make our selections always the best? Are we oftener controlled by questions of ease, expedience or expense, rather than by scientific data or the results of clinical experience?

The observing operator who has stood any considerable number of years at the chair will doubtless have accumulated a knowledge of the constantly recurring phenomena in the narrow and yet wide field to which he gives his attention, and of the conditions that make for success or failure, a knowledge that will be of inestimable value to him in the exercise of his judgment, not that clinical study reveals a scientific knowledge of things, but that it yields a no less valuable practical knowledge, and so long as our filling materials bear so little scientific relation to the purpose of their use, I certainly commend to the younger members of the profession close observation of the behavior of the several materials in the mouth and the ultimate results of our several operations and methods.

One of the most interesting chapters in dental history is that relating to the theory of dental caries and the resulting measures to arrest it. Years ago it was thought that the pressing of the teeth against each other was the cause of decay, and the teeth were sawed and filed and extracted in a heroic effort to isolate the several teeth, but the decay went on. I remember cutting from a

journal some years ago an extensively illustrated article on separation of the teeth, an article written by one of the then most prominent men in the profession. According to this method, the teeth were separated with files gingivally almost to the gum line, leaving there a shoulder or contact point, thus forming what were called self-cleansing spaces. These were the gropings in the dark. Later came the vital theory, then the chemical and the chemico-vital.

The chemical theory explained the several varieties of decay, the white, the brown, and the black, as each due to a specific acid. It was thought nitric acid was responsible for white decay, sulfuric for the black variety and that the brown was due to hydrochloric acid.

Passing the theory of lactic acid and the bacterial plaque, and with no attempt to discuss the cause of dental decay, I may say that the man at the chair is confronted almost daily with these three varieties of decay, and whether the cause be one or many they seem to indicate three conditions attended with different degrees of difficulty and calling for consideration in determining the treatment.

Teeth that are affected with brown decay may be confidently filled with cohesive gold and the best of results follow. But when we are confronted with cavities with white margins, cavities with semi-liquid contents, experienced observers realize that they are up against a serious proposition. Our best efforts come to naught, for after filling them with gold as carefully as we may, they are likely to be followed in two or three years with recurrent decay.

I do not here discuss the relative value of filling materials or their method of insertion. It would seem that the character of the teeth, their texture and environment, should be considered in making choice of filling materials.

Dr. Black has pointed out that the difference in the chemical composition of teeth, good and bad, is inconsiderable. The difference lies in the physical makeup. In teeth of the character to which I have referred we feel that the wall of the cavity should be supported without pressure by an adhesive material, that the filling support the wall rather than the wall support the filling, and that the dental tubuli be sealed more perfectly than can be done

with metal fillings. It would seem that if the care and vexation attendant upon the mastery of any new method, and such certainly attends the inlay procedure, is ever justified, it would certainly be in the field under consideration. The prognosis under old methods is not good. The extensive cutting usually required for inlays is less objectionable than in teeth of better promise, and certainly the occasional toppling out of a filling is no worse than recurrent decay.

The inlay method is passing through that stage through which all methods must pass. Enthusiasts insist upon its universal utility; it is generally criticised as a contestant for first place and many abandon it in disappointment because it is not found to be an all-around filling material. But the question is not whether it is a universal filling, but rather whether it will do certain things or meet certain conditions in the mouth better than anything else, and when it has answered the requirements and proved itself, it has found a place from which it cannot be moved by light objections.

Consider a moment the lower first molar. They come to us often badly decayed upon the occluding surface, perhaps the dentin largely gone and little of the crown remaining save the cap of enamel. The patient perhaps is 10 or 12 years of age. To insert a malleted cohesive gold filling is out of the question; filling of soft foil endangers the axial walls, and to fill with amalgam is to find the margins of the cavity giving away in a few years.

It seems to me that here the inlay offers its highest utility, for the margins may be so beveled that the filling will protect the walls and when made either of gold or porcelain will promise excellent results.

I say gold or porcelain, and yet it is not certain that either will hold first place as an inlay material. Experimentally, I have made very satisfactory inlays of vulcanite guttapercha. Tin foil may be used for the matrix and the guttapercha packed into the matrix while in the cavity. Then it may be removed and vulcanized.

Not to tarry longer here I suggest that a comparative study of the several methods of introducing gold into cavities might be as profitable as the study of the several filling materials them-

selves. I realize that I am on delicate ground here. Most men have their own way of doing things with which they are most familiar and by which they get their best results.

From my limited observation I surmise that most men confine themselves to a single form of gold and the straight away hand or automatic mallet. Indeed, the noblest specimens of cohesive gold work I have ever seen were made by hands used to but one form of gold and one class of mallets.

Yet, with the numerous and elegant preparations of gold and the varied line of instruments at our command, is not something lost in such restrictions? Will not one wedded to a single method necessarily force his cavity preparation into certain types? I do not hold this wholly an evil, but I have thought that, in the treatment, for instance, of the approximal cavities in the anterior teeth, one restricted to the mallet and straight plugger is often tempted to leave more of the lingual wall than safety will permit, and cuts away more of the labial surface of the tooth than is necessary, thus leaving a thin, weak margin on the lingual surface, dangerously near to the contact point, and making too much of a show of gold on the labial surface. Or perhaps the temptation is to cut away the incisal angle of the tooth unnecessarily, and carry the filling along the incisal edge.

It is just as easy to work on the anterior teeth from the lingual as it is from the labial, if a little study be given to the different methods of instrumentation, malleting, burnishing, hand pressure, and oftentimes to the combined use of foil and crystal gold, and above all, to the training of one's self to see and design fillings from the lingual. We are in duty bound to preserve, as far as possible, the appearance of the natural teeth, and a surprising percentage of the cavities in the anterior teeth may be effectually treated from the lingual, thus reversing the too common condition of things, resulting in the largest show of gold on the lingual surfaces with but a slight line of gold showing on the labial surfaces. Now something about the treatment of the dental pulp.

There has perhaps been nothing in the past so disappointing as efforts to save the dental pulp, and now since we have almost reached the dogma that the tooth has no use for its pulp, after the tooth is fully formed, we are discussing methods of extirpation,

as though one method should prove equally effective in all cases.

My experience with pressure anesthesia leads me to believe that there are many more conditions of the pulp than we commonly think. We open the pulp chamber with the aid of cocain, and are greeted with a flood of blood difficult to stay. We open another, perhaps causing some pain at the first puncture, only to find the chamber empty. Between these widely different conditions lies a field of changes through which the pulp may pass.

Should the pulp be healthy and freshly exposed and the cavity cleansed and sterilized then pressure anesthesia is a beautiful operation, but in a case in which the pulp has passed into a pathological condition pressure anesthesia may carry septic matter already present into the apical region and cause trouble. Too, in some cases, the pulp may have retreated from its walls and the opening into the chamber may be so small that the finest exploring instrument fails to discover it. In such cases we may make air pressure instead of cocain pressure and suffer disappointment and aggravating delay. It is not easy to discover pulp conditions, but a careful study of the case before operating will certainly save much trouble, while the phenomena exhibited in connection with pressure anesthesia will doubtless throw much light upon the subject.

There is a practice I wish to speak of and you will doubtless consider it trivial, yet I deem it of considerable importance and I think it too frequently overlooked. I refer to the practice of modifying the forms of the anterior teeth both for esthetic and prophylactic reasons. We confine ourselves too much to the filling of cavities and the repairing of the ravages of decay and do not give enough attention to prevention. It is quite often that a few touches of the carborundum wheel will wholly change the appearance of the anterior teeth and greatly augment their powers of resistance.

Frequently the central incisors have a greater length on the distal surface than on the mesial. Often the lateral incisors have an over prominent mesio-incisal corner thrust over the central incisors, or the cuspids have a sharp, pine-like cusp instead of a gracefully rounded cusp, or perhaps the cuspids may have a thin, knife-like disto-incisal edge overlapping the bicuspid. Or again the

centrals may have their square incisal angles lying parallel with, and against each other, thus inviting those difficult little cavities just at the angle of the teeth at the contact. To gently round the square incisal angles of the central incisors, to shorten the gingivo-incisal length of the distal sides, or to cut away the protruding corner of the laterals, to smooth over the cusp of the cuspids or polish away its knife-like distal edge, always endeavoring to leave the ball contact and a healthy interdental space at the gingival line, are things of but a moment, yet of considerable value.

Time forbids me speaking of important detail in cleansing of the teeth. The advisability of bridgework, the selection of impression materials, or the many other things that might be profitably considered. Sufficient it is to emphasize the value of discrimination and selection of methods and materials based on the study of actual results in the mouth.

PYORRHEA.

BY ROBERT GOOD, D.D.S., CHICAGO. READ BEFORE THE NORTHERN INDIANA DENTAL SOCIETY, AT LOGANSPORT, SEPTEMBER

19-20, 1905.

If pyorrhea causes the loss of more teeth than all other causes combined, should not the dental profession put forth greater efforts trying to acquire that degree of skill so necessary for the successful handling of this disease? Would not the usefulness of our profession to humanity be greatly increased, if the colleges taught the student how to keep teeth in the mouth as well as teaching how to replace them artificially after the natural ones have been lost?

The dentist should put forth every possible effort to save the natural teeth—this we should all feel is the highest service we can render our patients. I wish every member of our profession was able to cure "pyorrhea." So much suffering could be avoided, and the patients made comfortable, many stomach disorders could be cured, and many cases of extreme nervousness. My only excuse and object for reading a paper before this society is to tell you "pyorrhea" can be cured, and later in my clinic I will show you how to do it.

So many dentists have formed the habit of telling their patients

"Pyorrhea cannot be cured." This is a very bad habit, and should be corrected at once. That "pyorrhea" can be cured is news to some of you, I know, and this, perhaps, is the only thing one could say that would be new. Much has been written on "pyorrhea" and most writers claim it is incurable, but I have seen patients of Dr. Younger who were cured over twenty years ago with no return of the disease—a very good test, I am sure. Dr. Younger has been treating "pyorrhea" successfully for over thirty years, and what success many of us have had we owe to him, and I am always pleased if an opportunity presents for me to show the method of treatment, hoping thereby to inspire others, as he did me, to take up the work.

The treatment is surgical. First pass a flexible steel, blunt pointed needle (made by Sharp & Smith, 92 Wabash avenue, Chicago) to the bottom of the pocket, flooding the same with a local anesthetic. Then commence removing the "pyorrheal deposits," confining your efforts to one tooth until a thorough removal is accomplished, even though it takes hours. After all deposits are removed, flood the pocket with warm C. P. lactic acid. Now let the tooth alone, give it absolute rest, and in two or three weeks your case will be well. If the tooth is loose it should be banded or ligated with No. B sewing silk to hold it firm. (I use sewing silk waxed, because it is much better than floss silk.) Instruct the patient to massage the gum night and morning with powdered sulphur.

The instruments used for this work are made by Charles Grafrath, 158 West Twenty-seventh street, New York, and Lukens & Whittington, 624 Race street, Philadelphia, Pa., and the anesthetic by Dr. Chas. Oakman, Cleveland building, Detroit, Mich.

Many dentists give as an excuse for not doing this work, "Patients won't pay for it." This, I feel, is a mistake, for Dr. Younger came to Chicago practically a stranger and in a very short time patients were flocking to him from all directions, willing and anxious to pay him twenty-five dollars an hour, or any fee he might name, if they could only get rid of their "pyorrhea." He is now located in Paris, and his practice is so large that it is not possible for him to treat all who come to him.

"Pyorrhea" is a local disturbance, and I know of no disorder

that will yield so quickly to treatment. Gentlemen, don't tell your patients pyorrhea can't be cured. Tell them it can be; and, if you don't care to do the operation, send them to some one who can.

Here is an illustration that I thought of this morning. In 1893 there was a man named Ferris, a civil engineer, who went to the directors of the World's Fair and made a proposition to them. He was "turned down," because every civil engineer in connection with that fair said that he could not build the wheel proposed. But he did build it, and it ran, and it was one of the greatest attractions of the World's Fair. So I say that we have no right to judge of the ability of our profession by our inability. If we fail, the reason is in ourselves. We have the right to say that we cannot do a thing; but we have no right to say that it cannot be done.

WHAT WILL PROBABLY BE THE DENTAL EDUCATIONAL STANDARD FOR THE COMING DECADE?

BY CHARLES C. CHITTENDEN, D.D.S., MADISON, WIS. READ BEFORE
THE SECTION ON STOMATOLOGY, AMERICAN MEDICAL ASSOCIATION, 1905, AND PUBLISHED BY COURTESY OF
THE JOURNAL OF THE ASSOCIATION.

At the last meeting of this Section, at Atlantic City, in 1904, a symposium on dental educational standards was read, which was exhaustive and thorough in its character. In a paper presented at that symposium I had the honor to report chronologically the various facts as they had transpired, during the current year, concerning the attitude of the individual dental schools and the National Association of Dental Faculties toward the newly inaugurated four years' college course.

It had become apparent that a large number of the smaller and financially hampered schools were determined on returning to the three years' course.

This Section, at that time, in its discussions, expressed in no uncertain terms, its entire disapproval of any such retrograde action.

Immediately following the meeting of this Section came the

annual meeting of the National Association of Dental Faculties at Washington, D. C., at which meeting the whole subject was gone over and discussed very exhaustively, with the final result that, by a close vote of twenty-four to twenty-one colleges, the four years' course was upheld. This occurred in the early part of June. Almost at once following the adjournment the *ad interim* committee began to receive the resignations from membership in the National Association of Dental Faculties of a number of schools which were opposed to the decision at Washington to continue the four years' course. These resignations created such a panic in the ranks of the colleges that the *ad interim* committee was finally induced to call a special meeting of the National Association of Dental Faculties to be held at St. Louis, July 18, 1904, the sole purpose of which should be a reconsideration of the final decision made at Washington, the month previous, to continue the four years' course.

At this special meeting there were, of the fifty-one colleges in membership, twenty-eight represented. By a vote of 26 to 2 (being by a majority of one of the total membership) the four years' course was revoked and a three years' course of thirty weeks in each year was adopted in its place. The public announcement of this distinctly retrograde step (taken by a bare majority of one of the membership of the college association) came as a distinct shock to the rank and file of the profession. There was no semblance of an off-set in the way of increased standard requirements for admission to the college course to in some measure soften the baldness of the action. The outside world was simply made suddenly aware that the National Association of Dental Faculties, without waiting to graduate a single class or man under the vaunted higher educational system which that body had spent at least three years in elaborating, and had then declared to the world as absolutely necessary to properly fit the student for the dental degree, had, without explanation, struck its colors and surrendered. The one saving phase of the whole transaction was the fact that practically one-half of our colleges had been opposed to the change and had only acquiesced in it "to save the Faculties' Association."

The examiners of the United States had been loyally standing behind and ready to protect the schools in their higher standards

in every way. To them this bold retrogressive step called for immediate action. A blow had been struck at the established standards for commercial reasons only, and struck, too, by our National Association of Dental Faculties! All the schools of the better class had been obliged to yield to the inevitable and lower their standards—all save one, whose noble independence but makes the situation appear the more pathetic.

The annual meeting of the National Association of Dental Examiners was held late in August, 1904, at St. Louis. It was apparent, from the first news of the "retrogression," that something must be done to retrieve the situation before the world, and the examiners rose at that meeting to the occasion. The following report from the committee on colleges, preceded by a careful résumé of the entire situation, was unanimously adopted:

"Your committee would therefore recommend that this association establish at once to go into operation not later than the opening of the school year of 1905-6, the educational requirements, for admission to the dental college course, of graduation from an accredited high school or its full equivalent, all examinations of credentials and equivalents to be placed in the hands of an acceptable appointee of the state superintendent of public instruction where not otherwise provided for by law.

"In view of the present disturbed and unsettled conditions existing in dental educational circles, and with a belief in avoiding all unnecessary disturbances of standards at this time, your committee would further recommend that no change be made at this time in the present requirements of this association of not less than 28 calendar months of college attendance for graduation."

By what had occurred the trust of the examiners in the ability of the college association to maintain good faith under certain exigencies was so badly shaken that all standing resolutions which in any way interfered were rescinded, and the committee on colleges was instructed to prepare a new list of recommended colleges, based on the acceptance by the individual schools of the standards declared in the above report. The work was to be done independently of the National Association of Dental Faculties.

After having spent many months in correspondence and careful conferences with many of our ablest teachers and scientists, the committee on colleges issued the following letter to the deans of this country, February 14, 1905:

"In consideration of the conflicting views as to dental educational stand-

ards which have existed for some time, the National Association of Dental Examiners at its annual meeting held at St. Louis, August, 1904, deemed it expedient, and necessary for the upholding of such schools as sought to maintain the standards already published to the world as the minimum that should obtain, to declare what educational standards should be required by the state boards of examiners as a criterion of reputability of the schools seeking recognition of their output.

"This *ad interim* committee, which is also the committee on colleges, was instructed to inform all schools of the action taken, and directed to prepare a recommended list of colleges on the basis of the standards established at that meeting.

"Feeling fully the gravity of the duty imposed, this committee has expended much effort in striving to arrive at a basis of fairness to all interests concerned, in carrying out its general instructions. The chief requirement established at St. Louis was that of "graduation from an accredited high school or its full equivalent" for admission to the classes of 1905-6.

"In several schools and university departments this requirement is already in actual operation, and our committee finds a considerable number of other schools desiring to maintain it. All these, of course, will be placed on the recommended list. There are, however, other schools whose deans assert that to enforce at once this advance requirement would work a serious financial injury to their institutions.

"The question of what would constitute a proper length of course for graduation from a dental college has always been left by the examiners to the colleges themselves, except that, after a school has announced to the public a certain course as necessary to properly fit a student for graduation, if it, for private or financial reasons, deliberately lowers its requirements in any particular, the question of good faith and reputability of that school becomes at once a matter for adjudication by every board in the country.

"We, therefore, acting on authority of, and, *ad interim*, representing the National Association of Dental Examiners, which is the advisory body of the various state boards in their official acts, respectfully request that you authorize the committee on colleges to place your school on the recommended list of colleges by the acceptance of the following educational requirements for students, viz.:

"For matriculation or registration, 'graduation from an accredited high school or its full equivalent, all examination of credentials and equivalents to be placed in the hands of an acceptable appointee of the state superintendent of public instruction where not otherwise provided for by law,' said requirements to be inaugurated not later than the beginning of the school year of 1906-7; and a college course for graduation optional with you of either four years of seven months each or three years of nine months each, this course requirement to be inaugurated the present year, 1905.

"It is to be expected that schools maintaining these standards will be

protected in so doing by the several boards composing the National Association of Dental Examiners.

It is the intention of this committee to prepare and to publish the recommended list of colleges not later than April 1 next, in order to give all schools the earliest opportunity to announce these standards to the public. Therefore information as to your decision is desired as early as possible.

Very respectfully yours,

COMMITTEE ON COLLEGES.

The responses have been quite general and, on the whole, unexpectedly satisfactory. It developed that a large number of schools were only too desirous for the establishment of an educational requirement at once reasonable and at the same time so sufficiently advanced as to not only retrieve the unfortunate back step of 1904, but also to place their schools on a permanent working basis so advanced as not to be liable to material change for several years to come. As one dean expressed it, "This higher standard places us in a position to go ahead with our business, and we will not have to change again unless the Faculties' Association goes one better. It has been this uncertainty as to what was coming or what we were going to do next that had troubled me most. Now I feel as though we had something definite before us."

And thus it has happened that, up to this date, the acceptances have far outnumbered the refusals and the new college list is still growing.

The *rationale* of the matter being that while the National Association of Dental Faculties may and has set minimum bounds of requirement for its members, it cannot and never will undertake to prohibit any or all of its membership from placing their individual requirements as much higher as they may see fit. The only chance taken by the individual school in so doing is as to the ability of its product to compete successfully in the market with that of the schools retaining the lower standards.

The question, therefore, resolves itself to this: Will the examiners, with the power of law behind them, keep faith and redeem the pledges made by their authority and in their name by their chosen representatives, i. e., stand by and judicially maintain the advanced educational requirements established by the National Association of Dental Examiners at St. Louis in 1904?

The faith manifested by more than a score of our foremost

schools and universities in the integrity and honor of the examiners in this respect would seem to be a harbinger of a new order of things which will be, at least, paramount to commercial success in the conducting of educational institutions.

If the hopes herein foreshadowed shall become realities, a new impetus will be given to dental education, a better class of minds will be attracted to our schools, and for many years to come there will be no further disturbance in preliminary educational requirements for entering our dental colleges.

DISCUSSION.—*Dr. F. L. Platt*, San Francisco, said that a degree from a university is certainly commendable and necessary, but he thinks that it is hardly all that is required. A large part of dentistry is mechanical and must necessarily continue to be so. He believes that in addition to a university degree, if a young man is going to study dentistry, he should also attend a school of manual training. Dr. Platt has noticed that the students who have had some manual training do superior work. There must be a combination of these two kinds of training before one can become a good dentist. After a man has gained a knowledge of chemistry, physics, bacteriology and therapeutics, his training should be largely clinical. The greater part of dentistry can be taught by clinics, and Dr. Platt believes that each member of a class should be required to demonstrate his ability in the presence of others, and should not wait to learn to do this after he has acquired a degree. Experience in teaching operative technic has convinced Dr. Platt that so far as operative work is concerned, clinical instruction is far ahead of the lecture. He does not believe that dental colleges should be private corporations. Schools of law, medicine, theology and dentistry should be integral parts of state universities, with funds provided by the state and faculties paid by the state. At the end of the first six months, if a student does not display aptitude for the work, he should be advised to take up something else. Dr. Platt agreed with Dr. Carlton that a high school education is not sufficient. Dr. Platt attended a pedagogic meeting a year ago, and heard many people speak who were in favor of a four years' course in dentistry, but did not hear a single sound argument in its favor. He thinks that the course should be at least nine months a year and four years if necessary,

but to make the course four years at the expense of cutting down the length of each year, is not advancing. Students who have five months' vacation will not graduate from college as well equipped as students who have only three months' vacation. Some argue that the students get so tired they need five months' vacation. Others argue that students ought to have five months to work to earn money to finish their course. Neither of these arguments is worth considering. If the course is to be lengthened, let it be made four years of nine months each. A plan could be adopted requiring a degree in arts and letters for admission, as well as a manual school training, and then three years of good, earnest work would turn out good dentists.

Dr. M. L. Rhein, New York, said that possibly the colleges that have a six months' course are in the South, and they would have a six months' course whether it was three years or six. It has always seemed difficult to get southern colleges to give any lengthy term. The tendency in the northeast has been to increase the teaching term, whatever the number of years. Dr. Rhein thinks the basis for dental education should be absolutely as high as that of medical education, and until that standard is reached dentists are below their true standard, and that is the only thing that keeps dentistry from being recognized as it should. It is the one thing that keeps students of the proper caliber from taking up this specialty. They do not care to place themselves on a lower plane than any of the other branches of medicine. This section should strive to make the requirements of dental education as high as those required for medicine, and to keep them up to that standard. Dr. Rhein thinks it impossible for a man to practice this branch of medicine without being thoroughly grounded in general medicine. The groundwork of medicine is recognized as being not only of value, but of necessity, and while dentistry is a technical work, and while a technical school is of the utmost importance, without the scientific knowledge of medicine the dentist is at a loss to properly apply his technical knowledge.

Dr. A. H. Levings, Milwaukee, said that there are many subjects in the medical curriculum which would be of no use to the dentist, though a dentist must have some knowledge of the fundamental branches, such as chemistry, pathology, bacteriology, histology and therapeutics. He must have some knowledge of sur-

gery and perhaps a smattering of medicine, but Dr. Levings thinks that the study of neurology, gynecology, obstetrics, dermatology, otology and allied subjects would be of no benefit to the dentist commensurate with the time spent in study. If the coming dentist were required to take a full course in medicine, he would have to spend an extra year in mechanical work, because the medical student's time is fully occupied. He cannot complete the course of to-day in less than four years of eight or nine months each. Dr. Levings said that he has heard many say that the requirements should be put so high that but few dental students could meet them. The only consideration should be what is best for these prospective dental students. Dr. Levings appreciates as much as anyone that the more culture, refinement, education and mental training an individual has, the higher he can rise in his profession, and the more easily he can maintain himself, but it is not within the possibility of every prospective dental student or every prospective medical student to secure the standard. Such a course as is given now in dental colleges will train any man who has a high school education so that he can master all the problems pertaining to either dentistry or medicine. Those who have the time and money may take a medical and a dental degree, and before this an A.B. degree, and polish themselves as much as possible.

Dr. M. I. Schamberg, Philadelphia, said that it may take some time before dentists will reach a higher standard than that existing at the present time. To his way of thinking, there are two things of prominent importance in taking up this subject: one is the raising of the standard of the profession, and the second, which he considers even more important, is the placing of such men in the dental world as are able to render the best possible service to humanity. The financial status of the dental college should be absolutely ignored. It may be that the work of the stomatologist and the dentist will ultimately become separated before arriving at the desired goal. If that be the case, it will probably be best for humanity at large. Dr. Schamberg would prefer to see the various dental institutions under the control of state universities, so that the financial side of the question would not enter into it so much as the educational.

Dr. G. V. I. Brown, Milwaukee, said that in this question of

dental education a distinct advance of some kind is wanted. The purpose of Dr. Chittenden's paper is to fulfill the crowning act of a long life that has been given freely to the upraising of the standard, that before he dies something definite may be accomplished in the establishment of a higher standard of dental education. Dr. Brown said that he drew the resolution in the faculty association regarding the four-year term, and he has made more or less of a battle at different times for the four-year course. It is useless to discuss at this time the value of such a course, because for the time at least it has been decided to be inadvisable. He believes that the additional year could be secured with less hardship to the schools and with more likelihood of its being practical than any other advance. He believes every argument that has been made about the mechanical side of dentistry, and that since there cannot be a four-year course there ought to be higher entrance requirements, and that the course should be at least nine months, or as near that length as possible. Dr. Brown is connected with schools in the South and in the West. He sees both sides of the question, but at the present time no plan has been suggested which is practicable for meeting the situation. When someone presents a plan which will carry with it a distinct advance, so long as it is an advance which will enable the colleges of the South, West and elsewhere to continue and to prosper, that plan will meet with approval, and when that time comes he has no doubt the examiners' and faculty associations will again be on a harmonious basis. Dr. Brown believes in the value of having dental colleges under state control, but even under this condition it is not all smooth sailing by any means. At this time it seems nothing beneficial can be accomplished by discussion alone.

Dr. H. P. Carlton said that he has never yet written a paper of this character nor spoken his thoughts along this line, that the discussion did not at once turn to the question of courses and years. He wants to establish foundation courses and to leave the length of courses and curricula out of the question. He hopes to live to see it proved that the dentist of the future is going to be a medical man. The more a man gets in brain development the better dentist he will be. A man cannot be too broad and too scientifically trained to be a dentist.

Digests.

THE POSSIBILITIES OF A PROFESSIONAL CAREER.

By C. N. Johnson, M.A., L.D.S., D.D.S., Chicago. Every man has within him the impulse to achieve something of note in the world. However lacking in ambition he may seem, there is somewhere in his makeup a hidden spring which, if properly touched, will reveal a desire to do something great. It is true that in many individuals this spring seems well-nigh inaccessible, while in others, though the impulse is evident, there is not sufficient energy to overcome the inertia of circumstance or habit. Above all things there is lacking in too many people the one prime essential to achievement, viz., the patience to persevere in the face of difficulties. Brilliancy will often fall short of high attainment where ability of a lesser order will succeed through the sublime attribute of plodding.

After all, the nature of a man's calling matters not so much; the same characteristics, so far as the fundamentals are concerned, count for or against achievement in any walk of life. It is true that in the details there is a wide variance in the order of ability required for high attainment in different pursuits. A successful merchant might not have been a successful lawyer; a successful dentist might not have been a successful real estate man, and yet the merchant, the lawyer, the dentist and the real estate man must possess some of the same fundamental characteristics in order to be successful.

But it has sometimes seemed to me that there were possibilities in a professional career which, if a man availed himself thereof, would lift him into a higher plane of thought and action than that of the man who follows a strictly commercial pursuit. Not that the commercial man may not be an altogether important and necessary member of society. Not that there is the slightest suggestion of reproach against either the man or his calling, but that the truly professional life brings a man into more intimate relationship with his fellowmen and places his responsibilities and obligations upon a higher plane. The ethics of professionalism are different from the ethics of trade, and while it is true that the

general advancement of ideals in modern life brings the ethics of commercial pursuits very nearly on a par with what professional ethics formerly were, yet professionalism has always gone far in advance of the trades in ideals. This would seem to imply that ideals of life, both professional and commercial, are higher to-day than formerly, and in face of the generally conceived opinion that such is not the case, I am firmly convinced that it is. It may be argued that recent exposures in connection with trust abuses and insurance scandals would go to prove the utter deterioration of moral rectitude and the absence of ideals of any kind, but I argue that it is an unerring indication of a healthy advance in ideals. The very fact that these abuses have been exposed is proof positive that the people are contending for the principles of higher ethics and greater equity in commercial relations. Time was, not long since, when abuses of this sort were allowed to go on and did go on indefinitely without interference, and conditions which we to-day are seeking to ameliorate were considered inevitable. The one single discouraging feature of the recent investigations just referred to, aside from the wanton extravagance of high officials which everybody had all along suspected, was the attitude of the daily press. The hysterical clamor and distortion of facts in some of our press reports were not only a serious breach of ethical standards, but a real disgrace to modern journalism and an offense to common decency. Even the old staid Associated Press was not entirely guiltless in this respect, and in passing let me say that the next great reform that is needed in society is the purification of the press, and the suppression of some of the vile sheets which are hawked about the land to the utter abandonment of everything respectable or decent. One such sheet circulating in a community and pandering to the most depraved tastes by nauseating details of immorality and crime, can do more real harm to the social fabric in a single twelvemonth than ever was or ever will be done by all the trust and insurance abuses ever perpetrated.

But the purport of this paper will not admit of as full a consideration of this subject as I could wish. What I want to emphasize is the fact that I believe society on the whole is improving and that ideals are higher to-day than ever. If this is true it must follow that the professions are advancing, and this advance

leads us to the consideration of the possibilities of a professional career. In all those activities of life where men strive to attain something of note—something which shall give them a vital relationship with their fellowmen—there is no field more fruitful than the professions. It is true that of some professions it must be said that the breadth of possibilities is greater than others, the horizon is wider, and yet when all is considered it will be found that the penalties and compensations, as represented by the responsibilities and remunerations, strike a very even balance when the sum total of desirability is weighed.

A lawyer, if a man of ability, makes a greater impress on public opinion than a dentist and reaps a larger financial reward; a minister sways the multitude and enters more vitally into the motives and aspirations of mankind; a physician or surgeon has a wider field of effort and attains to a greater brilliancy of achievement if successful; and yet each of these has his tribulations. A lawyer is brought face to face with all the scheming, the meanness and rascality of which the worst types of humanity are capable. He is also subjected to the most trying temptations to wrong doing of all sorts, from bribery to blackmail. He is dealing continually with the baser impulses of humanity, with chicanery, dishonesty and deceit, and this kind of a life is apt to warp a man's judgment, to make him suspicious, and interfere with those high ideals which should be the ultimate aspiration of every individual.

This was never more vividly impressed upon me than when a few years ago I was sitting on an arbitration case with a lawyer of this city. After discussing the case at some length from every possible point of view and then failing to agree, he finally, in a burst of confidence, said to me: "Doctor, I want to do you the honor of saying that you impress me as being one of the fairest-minded men I ever met, and I also want to acknowledge that I do not think I am altogether a suitable man for an arbitrator. Being a lawyer, I do not suppose it to be possible for me to be anything but a partisan. I am sure it is not your fault that we have not agreed, and under the circumstances I do not think it is my fault, and I suggest that we refer the case back to the originals."

Gentlemen, in all earnestness, if I was a member of a profession the practice of which forced me to acknowledge that I could not

be fair-minded, and that I must look on only one side of every question simply because it was my side, I should get out of that profession to-morrow. But let me hasten to say that to the honor of the leading lights of the law I can hardly accept this gentleman's attitude as a fair index of the higher ethics of the profession.

A minister, though apparently a dominant force in his community, is after all nobody's dictator, not even his own. He is the prey of every bit of petty gossip, the butt of all criticism, and often the subject of slander. He is held accountable to the narrowest-minded of his flock, and his every act is scrutinized as if he were the common property of his parishioners. Not only this, but his tenure of office is subject to the whims of those who employ him, and his emoluments are usually not great enough to make him independent. In fact, he is the servant of a hundred masters, some of whom are certain to be hard to please.

The physician—well, I have the profoundest respect for the honest practitioner of medicine. There is no higher calling, to my mind, in all human endeavor, than the amelioration of suffering, and yet I would not exchange places with the medical man, even if I could. When I think of the responsibilities, the perplexities and the trials of the average practitioner of medicine; when I think of the obscurity of some diseases, the difficulties of diagnosis, and the uncertainty of treatment; when I think of the dilemmas and the disappointments, I am thankful not to be called upon to encounter them. Dealing with the intricate issues of life and death is a most serious business, particularly when many of the factors in the case may be wholly beyond the physician's control, and yet for which he is frequently held in strict account.

I have often felt that the loss of a single patient in whom I had a particular interest—and I should hope to have a particular interest in every patient committed to my care—would depress me beyond measure, and give me a sense of disaster and defeat. It would force upon me such a realization of my limitations that half the aspiration of life would be destroyed, and many of my highest ideals sadly shattered. I doff my hat in respect to the worthy physician and the brilliant surgeon, but the uncertainties and disappointments of their calling have no allurements for me.

Do I, then, think that dentistry holds the sum total of all that

is desirable in a calling? Not by any means. No one knows better than I its limitations, its exactions and its petty annoyances, and yet it is my office to-day to uphold some of the possibilities of this profession of ours which I hope may appeal to you as worthy of consideration. Let me affirm at once, with the risk of being considered biased in my judgment, that I verily believe that dentistry, practiced to its highest possibilities, is capable of affording to humanity more immediate, more definite and more tangible benefits than any other profession, with the possible exception of medicine. Medical science has largely succeeded in controlling epidemics and preventing plagues, but as has just been intimated, there are many features of medical practice which are still indefinite, full of conjecture, and altogether disappointing. In dentistry we are usually able to diagnose the trouble and afford relief. The greatest lesson of preventive medicine is embodied in hygiene, and the hygiene of the mouth is one of the most important factors in the maintenance of health. So that when a dentist operates on the teeth to render them sound, or on the surrounding tissues to make them healthy, he not only contributes to the comfort of the patient in preventing pain, but he establishes the possibility of normal function in the process of mastication and aids materially in the consummation of hygiene. In this way there is at once a tangible benefit to the patient, and no individual can come under the ministrations of a conscientious dentist without being made better physically. Not only this, but where the ravages of decay have marred the appearance of the patient by attacking the teeth that are exposed to view, dentistry comes to the rescue and restores not merely to health but to beauty the organs thus affected. And this is no mean office to perform when we consider how important the teeth are in conserving harmony of countenance. An esthetic face with defective teeth can never be imagined, and when dentistry contributes to make the human features beautiful and symmetrical it becomes an artistic as well as a utilitarian pursuit. And so the dental practitioner who follows his calling conscientiously has the satisfaction of knowing that he is a very useful member of society, and this of itself is not a small incentive to the highest endeavor.

But what shall we say as to the possibilities of the dentist in attaining the greatest measure of success in life—that being natu-

rally the ultimate object of following any pursuit? This, of course, depends to a certain extent upon what is considered success, but let us define success for our present purpose as the distribution of as much happiness in the world as our sphere of action will permit. This implies happiness for others as well as for ourselves—there is no such thing as real happiness which reverts solely to the individual himself. Happiness is mutual or not at all. To do the most good is to create the greatest happiness. Let us see, then, how much happiness the dentist may spread about him.

In the first place he may, as just intimated, add to the happiness of the people he serves in a professional way. Besides this he may be a useful citizen of the commonwealth and contribute to the welfare of the community in which he lives by a vital interest in the public affairs of the nation, the state and the municipality. He should study the public utilities of the day and vote at every election. Under proper conditions he may hold public office, but he should not allow himself to degenerate into a chronic office-seeker. The nature of our calling is such that to be a good dentist a man cannot allow the diversion of politics to enter too prominently into his activities, and yet I often regret that we do not more frequently see dentists in our legislatures.

At night when his day's work is done he may utilize the evening for the family reunion, the social gathering, the theater, and for reading and study. He should select the best literature and should aim to add each year to the culture which is ever the constant badge of the truly professional man. All this is within the possibilities of the dentist, because his evenings are practically his own. A physician in full practice is never certain of having a moment that he can control. As one said to me in discussing this matter: "When you are done with your day's work you are done, but when I am done it is only when I am done up." And it would seem that above all men the dentist should cultivate his mind and take advantage of the wonderful opportunities at his command to attain a high intellectual status in the community, and make of himself a really cultured individual. It has sometimes seemed to me that the members of our profession should really be the best informed, the best mannered, the best demeanored, the best tempered, the best principled, the best disciplined and the best dressed

of any calling. The reason for this is that for the most part we are dealing with people in the higher walks of life. Did it ever occur to you that we get the cream of humanity for our patients? Every individual who applies to the dentist for service—except him who comes impelled by pain for the mere extraction of teeth—does so either because of pride of person or of a higher conception of the utility of professional effort in our complicated modern life. You never see a roustabout from the coal docks or a laborer from the construction gang of a new railroad applying to the dentist for a filling or a crown unless he has advanced far enough in the social scale to have some pride in himself or has learned the utility of these things. And yet the physician is likely to have such a man for a patient and be compelled to treat him for weeks, irrespective of his intelligence or his lack of it. Not that any professional man should feel himself above treating the humblest citizen of the commonwealth, but that it is surely a desirable feature of the practice of dentistry that we are not often called upon to deal with the ignorant or uncouth class of our social structure.

The fact, then, that our work is among those of the highest types of civilization should stimulate us to the cultivation of such tastes and such tendencies that we may meet the most cultured of the human race on the basis of an equal order of intelligence, and I am firm in the conviction that if dentists will avail themselves of the opportunities presented to them by the nature of their calling we shall soon have a profession which shall be recognized the world over as representing a dignified and learned body of men. May the consummation of such a desideratum be speeded, and may you and I do our full share in bringing it about.

Permit me at this time to make a suggestion of a practical nature as to the possibilities of a professional career. The fact that it is too often neglected by members of our craft is my sole excuse for intruding it upon your notice. It relates to the provision which every responsible individual should make for the time when the hand has lost its cunning and the eye has become dimmed. If we live long enough this time comes to all of us and it is quite likely to affect dentists earlier than most men from the fact that our calling demands exceptional keenness of eye and deftness of hand. While I do not place money on a pedestal as a god to be

worshiped, and while I recognize the disintegration of character which the mere struggle for wealth involves, yet I insist that a reasonable competency for old age is a necessity to the highest fruition of success in life, and that every professional man owes it to himself and those dependent upon him to make such provision. There is nothing more pathetic in all professional experience than to find an old man with his earning capacity gone and utterly dependent upon others for support—particularly if he has any pride or ambition in his makeup.

The cry is often raised that dentistry is not a lucrative calling, and this is true in the sense that great wealth cannot be accumulated in its practice. And yet these matters are all relative and a large fortune is not needed by a professional man. Every dentist, if he will discipline himself to economy and care, can save something each year for the proverbial rainy day. Saving is so much a matter of habit that I am often impelled to beg of young men entering the profession to take careful stock of their possibilities in this direction and to make one resolve at the very beginning of their career. This is, that each year they will spend less than they make. In doing this it is seldom that they will be deprived of any essential element of comfortable livelihood, and the very discipline that is necessary to suppress the spendthrift that seems to be in most of us will add materially to strength of purpose and of character, and make of us better and more responsible men. I cannot on this occasion go into the details of the question sufficiently to outline a practical plan of procedure in the accumulation of a competence, but must content myself with these few suggestions in the hope that some of my hearers may be sufficiently impressed to take into serious consideration what I conceive to be an essential and material possibility to a successful professional career.

And now, in conclusion, let me refer briefly to a most encouraging phase of dental practice which I do not believe is often enough considered by our younger men—the very men of all others who should be led to consider it. I have said that if the dentist is systematic with his work he may have his evenings to himself for the cultivation of the higher things of life. What higher aim is there in professional life than the devotion each week or month or year of a certain amount of time for the prosecution of original research into the hidden mysteries which confront us in our daily practice?

There are problems to-day in dentistry seeking a solution which our younger men might easily solve if they would put the right kind of effort into it. I wish I might imbue every young man with the true scientific spirit so that in the early days of his practice, when he has such excellent opportunities, he would begin the study and investigation of some subject upon which the profession needs more light. There is nothing so fascinating as this when the habit is once formed, and nothing that will bring so rich a reward. We often hear an intimation that there is little encouragement for a man to do original research work in dentistry, but this is a fallacy. A man may not at once come into the kingdom of commendation by his fellows, but he will eventually be given exact credit for the good he has done. I never knew a man to work long and faithfully on any problem affecting the welfare of the profession that his work was not finally recognized and fully appreciated, provided he worked along rational lines and put intelligence into his effort. The beauty of modern investigation is that the beginner has the benefit of all the knowledge already gained on the subject and may start where others have left off. The technique of research work is becoming systematized and simplified and the young man may profit by all of this.

There is, therefore, to my mind no more inviting field than the one just indicated, and none half so fruitful of satisfaction and ultimate happiness. The best reward is, after all, not in money, not in fame, not in the commendation of others, but more in the sense of having done some good in the world, and, best of all, in the actual doing of the work. Say what we will about incentive to effort, there is nothing to compare with the fascination, the concentration, the intense absorption, of the enthusiast in the work itself. It takes him away from the sordid things of life and lifts him into the very atmosphere of heaven. It rarifies his sensibilities and adds keenness to the sublime satisfaction of achievement. It is a consecration of his energies, a baptism of his very soul.

Permit me to close with a short poem I have used on a previous occasion to illustrate this idea:

When all the doing is ended,
And all the record is made;
When all the chapters are written,
And the ink has begun to fade;

When the world has spoken its praises,
And the world has spoken its blame;
When the world has heaped the measure
Of wealth or want or fame;

When the last long look is given,
And the last receding call;
You will find, whatever your fortune,
That the doing was best of all.

—*Dental Review.*

HYPERACIDITY OF THE SALIVA: SOME CAUSES AND SOME EFFECTS. By Horace L. Howe, D.M.D., Boston, Mass. Read before the National Dental Association, Buffalo, N. Y., July 25, 1905. That the condition of the saliva has much to do with the diseases of the teeth is a fact which has long been recognized; therefore, to study the causes of the affections of the teeth intelligently it is necessary to examine into the causes of the abnormal variations of the saliva.

We know that normally the saliva is of neutral or slightly alkaline reaction, but observations by Dr. Michaels of Paris and others show us that variations from the standard of health make corresponding changes in the composition and reaction of the saliva. He determined that when the saliva was normal there was immunity to diseases of the teeth, and conversely, when it was abnormal, the teeth showed various changes as an effect. This coincides with Dr. Black's investigations regarding the cause of decay of the teeth, for he says, "Caries of the teeth is not dependent upon the teeth themselves, but upon the conditions of their environment."

Dr. Michaels also determined that when the blood becomes of a lessened degree of alkalinity because of the accumulation of acid waste products not eliminated from the system, the secretions and excretions of glands become acid in reaction; hence, to decide upon the cause of the over-acid condition of the saliva it is necessary to search out the cause of the lessened degree of alkalinity of the blood. As this condition of the blood seems to accompany most diseases, we should be compelled to search out the cause of these diseases.

Bacteriology shows that the immediate origin of many diseases is due to bacteria, but with all our increased knowledge and resources we are less free from disease, including diseases of the teeth, than were our prehistoric ancestors. That civilization, with its resultant changes in food, shelter and occupation, is responsible for the difference in general health must be the case; therefore, to try and attribute the cause of disease to any one factor, without considering the other modifying influences, would not only be useless, but very unreasonable. With the advancement of civilization we have the corresponding increase of mental and nervous trouble, because the competition of to-day is a mental instead of a physical struggle, and the influence of the mind over digestion and health ought not to be ignored.

That the food and habits of eating are responsible for much of the difference in general health and in the health of the teeth must be the case. Civilization has made many changes in the character of our food. Instead of the coarse and simple food of our ancestors, which required much mastication, we have to-day soft and highly seasoned food that requires little, if any, mastication. Again, because of the increased luxury and the ease with which food is obtained, overeating has become a race habit. This fact has long been known, as is shown by the writings of Hippocrates, the Father of Medicine, born 460 B. C., who said: "Excess of food causes disease, and at the same time points out the remedy." It is interesting to know that recent observations seem to confirm this old idea. For instance, Dr. Haig, of London, the expert on diet, cured himself of severe headaches by the elimination of meat from his diet, and claims that many diseases are due to excessive meat-eating.

Again, Mr. Horace Fletcher is startling the medical world with his discoveries regarding nutrition. He found out, in the attempt to restore his lost health, that by the thorough mastication and insalivation of his food he was not only restored to exceptional health, but after a time his appetite called for the simpler foods, and the amount necessary for all needs was reduced surprisingly. Deliberation in eating seemed to overcome the desire for excess of food, and the body, unimpaired by injurious waste products, was able to perform all its functions in a better manner. Thus we see

that the same result was obtained by two different men in different ways: one by thoroughly masticating and insalivating only small amounts of food—both animal and vegetable—restored his health; the other by eliminating animal food obtained the same result; but the common factors which we notice in both cases are simplicity and the reduced amount required.

Whether our health is best maintained upon an entirely vegetable diet is not for me to say. However, it is certain that this diet in all climates would be inconsistent with the wise provision of nature, for wherever man lives he finds at hand food adapted to his needs in the climate in which he finds himself. Thus, in the coldest regions animal food is provided and is the best suited for all needs in that climate, while in the torrid zone animal food would not only be disagreeable, but also unhealthful.

As we know that the condition of the teeth is dependent upon the saliva, and also that the condition of the saliva is dependent upon the state of the blood and health, it becomes of special interest to us as dentists to study the reason why the simple act of masticating thoroughly the food ingested makes such a wonderful change in the general health.

Having been troubled with severe headaches since childhood, my own case seemed especially adapted for study. By so doing I found that my saliva was subject to many changes—due to state of health, to changes in food, and in the amount of mastication. I also found that by masticating vigorously a large piece of rubber my saliva changed from a neutral to very alkaline reaction. When I was troubled with a headache my saliva was quite acid in reaction; but, even then, by chewing rubber the reaction would change to a less acid condition, and sometimes even to an alkaline reaction. This seems to show that the increase in degree of alkalinity of the saliva, while eating, is largely due to the act of mastication itself.

Mr. Fletcher determined that when he thoroughly masticated and insalivated his food it became of alkaline reaction, and by so doing digestion and assimilation were improved. As practically all our solid food is acid in varying degree, the chemical action of our alkaline saliva upon our acid food, as well as the changing

of the starchy food into grape sugar by the ptyalin, must be an important feature in the mouth treatment of our food.

For a moment let us trace food that is not given proper mouth-treatment: All the richer foods are more acid than the simple vegetable food. If this rich and strongly acid food be bolted and washed down with coffee, which is often acid, or beer, which is always acid, the saliva does not have a chance to act upon the starchy materials; neither is the acid reaction of the food changed by the saliva, but the whole mass goes into the stomach in an acid condition. By Anstie's law respecting glands we know that the acid-excreting gastric glands are stimulated by the presence of alkaline substances. If the food be not converted into an alkaline mass in the mouth, the stomach glands are thus deprived of their natural stimulation. The result is that after a time the stomach becomes simply a reservoir for ingested food, and does not perform its share of digestion. As every succeeding stage of digestion is modified by the preceding, we can appreciate the importance of the first step being perfectly performed. This fact is even better understood when we know that all our digestive fluids seem to alternate in reaction, each depending on the previous one for its natural stimulation. First, we have the acid food stimulating the alkaline-excreting salivary glands; second, the alkaline saliva stimulating the acid-excreting gastric glands, and so on to the last, which is the alkaline pancreatic juice.

This order is remarkably well shown even in infancy, before the salivary glands are developed; for naturally the child is nourished by the human milk, which is normally alkaline. This is taken directly into the stomach, the gastric glands thus having their natural stimulation, *i. e.*, alkaline milk.

As the deciduous teeth erupt the salivary glands develop; as the child is given food, the least acid food first (crackers, crusts, etc.), the saliva becomes equal to the task of converting it into an alkaline solution. If the task be too great, the stomach rebels and the food often is thrown off.

Is it a wonder that our stomachs become sour, and that assimilation and metabolism are affected, when the first or voluntary step of nutrition is ignored,—especially when we know that about three pounds of saliva are excreted and reabsorbed in a day, and

when this may be so much changed by the simple act of mastication?

For a moment let us study the cow and her milk for comparison. The comparison is imperfect, but nevertheless may be of use. Cows, when kept out of doors and left to feed upon grass which requires much cud-chewing to render it capable of being digested, are usually healthy and give milk of alkaline reaction. But when kept in barns and fed upon concentrated food, such as animal meal, fine grain or ensilage (which is a fermented food), they become subject to tuberculosis, inflammation of the bowels and many other diseases. Furthermore, the milk under these conditions becomes acid in reaction. As the cow is unable to chew her cud as much when fed fine and concentrated food as when fed grass and coarse food—does not the act of cud-chewing itself become a factor toward the health of the cow and the condition of the milk? We know that, normally, cows' saliva is alkaline, and that when cows chew upon one side only the parotid saliva is increased in amount upon that side. If the cow's stomach and system are deprived of this increased amount of saliva obtained by cud-chewing, why should not the blood and milk be affected? Again, cows that have been kept in barns all winter have been known to chew pebbles or old leather in the spring. Does not instinct tell them that their systems need the saliva thus obtained?

The causes and effects of hyperacid saliva are so closely allied that it is hard to differentiate between them; however, among the factors concerned in the cause might be mentioned excess of rich and soft food, lack of elimination of the acid waste products of the system by perspiration and lack of the neutralizing effect of alkaline saliva obtained by thorough mastication of food.

The effects of over-acid saliva would be hard to enumerate. It is certain, nevertheless, that they are varied and far-reaching. The local effects upon the teeth, manifested as erosion, caries, hypersensitiveness and pyorrhea alveolaris, are too often seen to need describing. Furthermore, the systemic effects due to its reabsorption with its load of offensive secretions from the pus pockets around the teeth and from the coated tongue must be detrimental to the general health. The most logical remedy for these abnormal conditions of the saliva seems to be obtained by using to its fullest

extent nature's neutralizing fluid of the system, *i. e.*, alkaline saliva obtained by thoroughly masticating our food.

As the high standard of health seems to be our best safeguard for resisting disease, ought we not give the first step of nutrition—important in so many ways—its just consideration?—*Dental Cosmos*.

THE PROFESSIONAL MAN'S DISEASE. By Eli H. Long, M.D., Buffalo, N. Y. Read before the National Dental Association, Buffalo, July 25, 1905. In a recent number of the *Journal of the American Medical Association* there were tabulated the causes of death of 2,142 physicians occurring in 1904, showing an average age of about sixty years. The average of years of practice was about thirty. While all cases could not have the cause of death accurately stated, the summary of so considerable a number gives some data of value. The chief causes of death are stated as follows:

	No.	Per cent.
Heart disease (including sudden heart failure)...	205	9.57
Cerebral hemorrhage.....	179	8.35
Pneumonia	172	8
Nephritis	91	4.24
Tuberculosis	90	4.2
Cancer	39	1.8

It will be noticed that heart disease was responsible for the largest number of deaths (9.57 per cent); cerebral hemorrhage followed closely (8.35 per cent); making a total of nearly 18 per cent from diseases of the circulatory system. In addition to this, it is probable that in the 4.24 per cent due to nephritis, disease of the blood-vessels predominated in a sufficient number of cases to make the total percentage for circulatory diseases fairly approximate 20 per cent, while the deaths from the two chief respiratory diseases, pneumonia and tuberculosis, together make up only 12.2 per cent.

This is in strong contrast with what obtains in all mortuary statistics up to middle life, for there deaths from respiratory diseases far exceed those from circulatory diseases. The fact is that

at middle life we have passed out of the period of greatest vulnerability to infections into the period where disease is more commonly due to degeneration. This is a distinction of importance, as we shall see later.

The figures cited cannot be taken as proving that medical practitioners are more subject to diseases of the organs of the circulation than persons of all other occupations; but, taken in connection with our daily observation, it indicates that in persons who pre-eminently are living the strenuous life, the wear and tear are most productive of harm in the circulatory system. It is likely that similar results would appear in any class of professional or hard-working business men. To bring the matter a little closer home, I am convinced that what applies to the physician in this regard will apply as well to the dental practitioner. While the latter is not subject to the irregularity of sleep and of meals of the former, he works harder during his long office hours—while he also breathes less pure air and takes less exercise than his medical neighbor, which are factors of importance.

The prominence of circulatory diseases may seem to you incompatible with the statement that death from simple primary disease of the heart is not common. Except in the acute infections, in the very bad cases of valvular disease, and in rare conditions, disability of the heart represents conditions more or less general, the causes of which must be sought outside of that organ. In our search we have learned to give much attention to the blood-vessels, and particularly to the arteries. The occurrence, in such a series as this, of more than 8 per cent of deaths from cerebral hemorrhage, forces this upon us; for this accident, commonly called apoplexy, always means disease of the arteries leading to rupture.

Viewing this as one of the common and natural terminations of life, we cannot object to the sudden blocking of the conscious activities by the presence of a blood-clot in the brain in persons who have done their life-work and have reached an advanced age; for the event is probably as painless as chloroforming and nearly as certain, if sometimes slower. But it is because of the fact that there are annually, in the aggregate, thousands of comparatively young men, among the most active and useful citizens of our country, who are either suddenly summoned, or gradually in-

capacitated for duty, by inroads of degeneration in the circulatory vessels—obscure at first, but capable of being retarded—that your attention is invited to this topic.

A further fact that must appeal to us is that, while many cases can be traced to a vicious life as a cause, very many still occur in those who make hard work either a cardinal virtue or an imperious master, to the neglect of the welfare of the body. While feeling that they are serving their day and generation well, they may be dishonoring their Maker in a most wasteful abuse of their powers. Be this as it may, we often see the most useful, the most needed by society and their families, cut down before their time.

This brief paper cannot attempt to analyze all factors concerned in premature degeneration, but only to emphasize the important ones, with practical suggestions as to prevention and remedy. With our present knowledge it may be stated as a fact that the degenerations of age, and particularly when occurring early, are seen most prominently in the arterial system, and that they consist of a hardening, a weakening and a compensatory thickening of the vessel walls. Atheroma is one name applied to the condition, although the more distinctive name is endarteritis, the inner coat being the usual starting-point of the disease. Arterio-sclerosis is another term, which signifies the presence of fibrous thickening in the wall of the vessel. As you well know, these changes are often followed by calcareous deposits in the arterial wall, sometimes leading to the extreme stiffening of the vessel, which is known as "pipe-stem artery." The disease is usually evident, even early, by a palpable thickening which may be noticed in the radials and temporals, and by an increased arterial blood pressure which gives a strong pulse of high tension and an accentuation of the aortic second sound of the heart.

The pathology of endarteritis is not single. Varieties are recognized, among which the syphilitic holds a place of great frequency and importance. Heredity and diathesis must be noted among the causative factors, but as being of secondary importance in most cases. Chiefly as these factors contribute to early degeneration of tissue do they enter into consideration. Recognizing the frequent influence of early senility from whatever cause, we still come to

the belief that the determining causes are mostly acquired, and preventable to the extent of postponing the occurrence of serious symptoms.

What, then, are the chief causative factors? They are of two kinds—structural and nutritional. We have entered upon the period of life when degeneration must be looked for. Recognizing this, we first mention the fact of a degenerative tendency, which is usually first seen in the lessened elasticity of the arteries. Their function of expansion during the systolic filling of the vessels and of contraction during diastole is diminished, with the result that the even distribution of the blood to the capillaries is interfered with.

It must be remembered that, while the heart's action gives force to the circulation, the reservoir and distributive function of the arteries is just as necessary to a normal circulation in the capillaries; and the fact is too commonly overlooked that in the capillary areas lies the most important part of the circulation, for the whole circulatory apparatus is arranged in order to give a proper supply of blood to the cells of the tissues, where the real laboratory work of the system is carried on. As related to cellular conditions, it should be noted also that the capillaries are less abundant at this time of life, as many of them which were needed in childhood to supply the need of growth have disappeared since the completion of development. This combination of conditions would doubtless lead to early interference with cellular functions were it not for a compensatory provision in the fact that the heart grows larger and stronger as age advances. The increase of arterial pressure caused by the factors mentioned may stimulate this growth to a decided degree of cardiac hypertrophy, which for a time insures a sufficient blood supply, but which in time, with the progress of arterial degeneration, increases the danger of apoplexy. With these facts as a basis you will appreciate the statement that has become current in medicine, that "a man is as old as his arteries." Some men are older at fifty than others are at seventy, because degeneration of the circulatory system (chiefly the arteries) has progressed farther; and it may be added that no other condition can more reliably predict length of days than the condition of the arteries.

Thus far we have mentioned only the factors that are in a sense normal—that may be expected to appear in the process of aging in any person. Were these recognized at the proper time for most efficient treatment, *i. e.*, before any symptoms occur, we might succeed in prolonging life and usefulness for many years in the average of our cases. But cases do not come under observation until symptoms have appeared, or in other words, until the compensatory advantages have been outweighed by the progressive degeneration.

But to these structural or physical factors there are often added those due to improper living or working, which affect the nutritive processes more directly. The faults of living may be included in the terms *high living*, *irregular hours* and *insufficient exercise*, or more briefly still, *too much food* and *too little exercise*. The faults of working are sustained *mental* or *physical strain*, *too great concentration*, *worry*, *long hours*, but sometimes *too little work* of a kind that requires physical exercise. The symptoms first to appear are those due to deficient oxidation and deficient cellular elimination. How are these brought about? Referring again to the loss of elasticity in the arteries, please note two points: first, that the supply of blood to the capillary area is likely to be intermittent, approaching what would occur if it were forced through a series of metallic tubes; and second, that there is less total force communicated to the venous return current, with a resulting tendency to accumulation of blood in the veins. Suboxidation, faulty metabolism and deficient cell-elimination must follow, and if high living and little exercise be the rule, it is plain that we have a blood surcharged with nutriment that can neither be fully used nor oxidized into harmless products. Elimination being at the same time deficient, the sum of results will be the retention in the blood of imperfectly oxidized, irritating substances, with toxic products that have failed of elimination. That kind of blood is taken back to the heart and is thence distributed to every tissue of the body, and there must follow serious disturbances of nutrition throughout.

The heart is one of the first organs to suffer, and we have here the basis of cardiac irregularity and degeneration. The sudden deaths that so frequently occur in apparently strong and comparatively young men must usually be due to an unsuspected degenera-

tion of heart muscle from atheroma of the coronary arteries, or to thrombosis; but the influence, upon the nutrition of the heart, of a toxic blood in constant circulation must not be overlooked as a primary factor in causing degeneration.

We have passed rapidly to the more serious results of arterial disease so as to make our outline; but attention to detail requires the mentioning of two other points: First, that suboxidation in moderate degree conduces to the formation of fat, and the increase in weight that is often seen to occur rapidly in middle life may oftentimes mean a beginning arterio-sclerosis; second, the retention of suboxidation products and waste material in the blood are to be regarded as the essential condition of the gouty diathesis. We have been beguiled by the uric acid theory and the supposed lithic acid variety of the gout family of disorders; but we have rather too slowly learned that uric acid is not the harmful substance it was formerly supposed to be, and that its accumulation is not the cause of the gouty attack. But when we recognize that autointoxications are the basis of most nutritional disorders we are in a position to treat them most satisfactorily, though we may not be able to name the single offending substance in any given case; so in the conditions under discussion we must appreciate the factor of autointoxication which necessarily occurs with either a continued suboxidation or with deficient elimination.

Arterio-sclerosis is not always evenly distributed through the system. The coronary arteries in the heart may be particularly affected, causing degeneration of the muscle through insufficient blood supply; or the disease may be more advanced in the cerebral vessels, leading to an early apoplexy from rupture, or to cerebral softening from poor supply of blood in the locality; or the disease may be more advanced in the kidneys, contributing largely to chronic Bright's disease.

Right here I wish to emphasize the importance of the above considerations in relation to the constitutional factors in gingivitis. Either the presence of local arterial changes, or autointoxications from a general sclerosis may be important factors in the so-called "gouty" pericementitis, and attention to the lines of general treatment to follow may be of primary importance.

In accordance with the main purpose of the paper, our discus-

sion of treatment will be directed to prevention and to treatment of the earlier and more remediable stage of arterial disease. As hinted earlier in this paper, the treatment will be most efficient if begun before the occurrence of symptoms. Practically, however, treatment begins with the appearance of the first symptoms, unless the condition is discovered incidentally.

The treatment of early cases will be hygienic rather than medicinal. It will comprise, first of all, the correction of two very erroneous habits which prosperous and hard-working men are given to, those of over-indulgence in food and alcoholics and of taking too little exercise. We forget that metabolism is less active and that the body needs less food after development is completed, and that, the play period of life being past, proper oxidation requires more effort on our part; but if well-to-do we easily fall into the habits of luxury, loading our tissues daily with an excess of food materials whose elaboration and oxidation would overtax the average resources; then, inconsistently, we reduce our exercise by riding to our place of daily activity, our leisure hour being spent in reading, in automobiling, or at the club, without exertion on our part. If we indulge in some fashionable form of exercise it is rather as a social pleasure than a necessity, and it suffers many interruptions. In order to achieve the best success it is essential to secure an attitude of mind that will realize that a continuance of usefulness depends upon making a business of proper living, and that is willing to follow that business continuously and indefinitely. In view of the inroads that arterio-sclerosis makes before symptoms occur, we would do well to imitate Nature in her carefulness of the female sex, by instituting a "change of life" in the male at the age of forty or forty-five. At this age the greatest strain of securing a position of usefulness and a sufficient income should be past, so that, except for the greed of fame or of acquisition, a man should be able from now on to work more leisurely and conserve his powers for a longer usefulness.

In the matter of eating, two moderate meals daily are sufficient if one will habituate himself to the plan. A third meal, if taken at all, should be light and easily digestible. The aim is to take just enough food to supply the actual daily need and no more. An abundance of water should be taken to act as a dilutant and to

aid elimination. The daily routine must include enforced active exercise, in order to stimulate general circulation and complete oxidation of food materials and waste products. Walking is undoubtedly the best form of exercise, and it presents very little danger of excess to the person of ordinary strength. Bicycling, gymnastics and bowling are excellent substitutes, but being more violent they present greater danger of excess. Whatever the form of exercise, it must be with free access of fresh air and it must require expenditure of energy. It is a mistake to suppose that the inactive open-air diversion of automobiling will take the place of exercise. The appetite will be sharpened by any out-of-door life, but if the larger amount of food thus demanded be not burned up by the active expenditure of energy, it will be deposited as fat without advantage. Any marked increase in weight at any time should place an interrogation point as to the proper adjustment of food and exercise. Massage is very useful when the condition prohibits active exercise, but, for the man who can walk, it should be regarded only as an aid.

Referring again to the importance of the capillary circulation, we urge the necessity of studying the condition of the smaller arteries, and particularly the arterioles, as a basis for another equally important line of treatment.

By their function of contraction and dilatation, the arterioles regulate the amount of blood flowing into the capillaries and thereby also the activity of cellular nutrition. This function of regulation is diminished in arterio-sclerosis, with a tendency to undue contraction in cases with deficient oxygenation of the blood—for an excess of carbon dioxid stimulates the arterioles to contraction. Therefore, in spite of a high arterial pressure the capillary blood supply may be deficient. In order, then, to conserve nutrition of cells through improvement of this function, attention must be directed to the arterioles. In addition to exercise, which promotes the capillary circulation, the most efficient means of exercising the arterioles in their function of contraction and dilatation is by means of the daily cold bath. The tub or shower bath each morning, or cold sponging or pack as substitutes, will exercise the vessels in both ways; the first contact of the cold water causing a contraction which is quickly followed by a tonic dilata-

tion that imparts a ruddy glow to the surface and gives a sense of refreshment and well-being to be obtained in no other way. Friction with a rough towel should follow in order. The cold bath also stimulates elimination by the kidneys, which adds greatly to its value in these cases. A glass or two of water taken upon arising, followed by the cold bath, will make one sensible in a short time of a very active kidney function. The circulation can in this way be flushed out in preparation for the needs of the day. Activity of the bowel function should at the same time be secured. If the person is of full habit, or if elimination needs aiding, a moderate dose of a saline cathartic each morning upon arising will be in order. Regarding the cold bath, it is thought by some persons that they cannot accustom themselves to so vigorous treatment, but if the bathing be done in a warm atmosphere, so as to avoid chilliness before the bath, and if the plan is begun with water only slightly cool, reducing the temperature by degrees during weeks of treatment, always securing a good reaction by the aid of friction, nearly every person can become accustomed to a bath of 60 degrees F. Recalling that arterio-sclerosis is a disease characterized by high arterial blood pressure which in time may become a menace to a weakened cerebral vessel, we expect the combination of restricted amount of food, active exercise and bathing will accomplish a reduction of blood pressure and possibly of cardiac hypertrophy. In advanced cases, where degeneration of the heart has resulted, a more decided dilatation of arterioles is secured by the effervescent brine bath, known as the Schott bath. The excellent results following its use are due to the reduction of work required of the heart by removing the peripheral resistance of contracted arterioles, and to the improvement of nutrition in the cells receiving a better supply of blood.

It is of importance that the man who is working long hours or under constant strain shall lessen the tension and avoid all sources of worry. Shorter working hours and longer out-of-door exercise should be the new rule.

Among the drugs employed in this disease, potassium iodid has the reputation as an alterative of antagonizing the sclerotic process. The nitrites are positive vaso-dilators, but their action is essentially

depressant and they have come to be used more as emergency remedies than in routine treatment.—*Dental Cosmos*.

THE NECESSITY FOR A CHAIR OF ORAL SURGERY IN THE MEDICAL CURRICULUM. By Charles E. Bentley, D.D.S., Chicago. The present tendency of the age is toward specialism in all departments of the arts and sciences. The day of universal scholarship, when Plutarch and Bacon could go the rounds and label every item, is as extinct as the Saurian epoch. The world is simply too large—life and mind too finite. The all-around man of learning, like the all-around doctor, is rapidly giving way to the specialist in learning, as in medicine.

In the great centers of medical activity, where the conditions of the survival of the fittest obtain, the men who, after careful consideration and thoughtful digestion of the eternal fitness of things, have chosen their specialty and studiously pursued it—are the men who are making their impress upon the medical world and making valuable contributions to the literature of the profession.

So it follows that the good old "family doctor" is fast becoming, in such centers as I have indicated, a counselor rather than a medical attendant. His tenure of medical office is in proportion to his past usefulness rather than present helpfulness. This condition is the result of the demands of the people for the highest services that can be obtained in any given case. The profession has been quick to recognize this condition and its members are rapidly adapting themselves to its needs. As a result, we have many specialties in the broad fields of medicine and dentistry.

Thus oral surgery, as a specialty, has sprung into existence. Not that surgery of the mouth has not been contemporaneous with general surgery since it began, but that those whose special duties confine them to the mouth have so developed the surgery of this especial part that its needs and the accumulated experience of those who are its devotees have made a distinct place for it in the realm of surgery, just as gynecology or surgery of the eye or nose is now distinct from general surgery.

The medical schools of this country have recognized this fact, and as a result, in those institutions that have and do stand for high standards, chairs in this department have been established.

Many medical colleges include in their curriculum to-day the chair of oral surgery and oral pathology. In the development of this specialty the dentist has played an important part. His field of action being confined to the oral cavity, he very naturally has demands upon him for its surgery, so that in the filling of the chairs in the aforesaid colleges the dentist has been chosen as the proper person for such office. This recognition of a kindred profession has been a stimulus to a broader and deeper knowledge on the part of dentists in this particular department of surgery, and as a result fresh contributions to the literature, comprehensive text-books, and a wealth of information have come from dentists working in this line. Several have raised their names from the common level and have made a reputation of national importance. Garretson, Brophy, Gilmer, Marshall, Fillebrown and Cryer are a few men who have won distinction in this line by reason of their creations, and the surgery that is being done in the mouth to-day is done along the line of principles laid down by these men.

The instrumentation for such surgery has been completely revised by reason of this new stimulus. The bungling operations that characterized the period but a few years ago have given way to those easier of execution and surer of results. One of the inexorable laws that is responsible for the advancement of this specialty is that all operations upon the jaws (save the operations upon the tongue) and associate parts are to be performed within the mouth. This is practiced for two reasons: (1) There is less danger of sepsis in wounds of the mouth, because the fluids that bathe the oral cavity are capable of taking care of the specific germs which produce that condition; (2) that the unsightly scars that are produced by opening into the mouth from without are unnecessary, as ample room is provided within the mouth for the operations and the scars are averted. The importance of any method that avoids scars and conserves the esthetics can readily be seen. To the writer's mind, these two things have done more for the advancement of oral surgery than any similar number of considerations that may be mentioned.

The question might be asked, What subjects should be included in such a chair? The answer might be:

1st. *Associative lesions of first dentition.* What physician is there who has not been baffled in the presence of some of the many

lesions that are incident to the dentition of the little folk? This heading should include with the time of the eruption of the temporary set a study of localized stomatitis, irritative fever, diarrhea, spasms and eruptions of the skin. When one considers the delicate and susceptible organism of an infant, he is very well prepared to understand that in the influence of the process of dentition must necessarily exist a powerful predisposing cause inviting the attack, and, indeed, opening the portals, as it were, to enemies that otherwise might pass harmlessly by. In the first place, the process of dentition, while a physiological one, is yet like that of uterogestation, one of continuous irritation. Irritation, then, is the matter of consideration in all these associative lesions. If we can control this irritation we can abort the results. It is not, however, by any means, to be considered that all infantile diseases are influenced by or even remotely associated with dentition. Mistakes of such nature are quite too frequently made; but that it should always have its full share of consideration in the diagnosis we desire to emphasize. To understand dental irritation one must be familiar with dental evolution. This, of course, means its physiology. We know the varying periods of eruption and we are at once led very directly in our researches. We should be familiar with the diseases that accelerate or retard this process. These, together with the subjective symptoms, should intelligently guide us in the treatment.

2d. *Anomalies of second dentition*, especial attention being paid to those degenerative processes that have remote manifestations, such as pulp nodules, etc., which give rise to persistent neuralgic pains of the fifth nerve and its branches. There are many anomalies that might be culled under this heading, but three will suffice for our purpose:

1. Tooth germs developing in positions where their product must remain encysted.
2. Teeth whose roots perforate the antrum.
3. Impacted third molars. These encysted teeth are often the source of much trouble and not infrequently eventuate in osseous tumors that demand surgical interference. The buccal roots of the first and second upper molars often penetrate the antrum, and if the pulp or, as it is commonly called, the nerve dies in such teeth, it

affords a channel for direct infection. This condition has only to be referred to in this presence for its gravity to be understood.

3d. *Alveolar abscesses and their sequelæ.* A study of the causes and consequences of burrowing pus, together with the conservation of such teeth—for it is no longer held that a tooth should be consigned to the forceps because it is abscessed. The study of an alveolar abscess becomes interesting to a physician when its consequences involve remote tissue. The formation and confinement of pus in a cavity so obstinately closed as the alveolus of a tooth must necessarily inflict the severest suffering. The burrowing of this pus, following the direction of least resistance, often finds its exit in peculiarly remote places. Thus, the points just below the malar process, beneath the chin, the anterior nares, and as low down as the clavicle and mammæ, are not infrequent exits. On account of these remote points of exit the source is often clouded in obscurity and a reference to alveolar abscess and the physical characteristics of such teeth are important to the physician.

4th. *Fracture of the inferior and superior maxillæ.* A study of the various splints and newer methods of reduction and the possibilities of restoration in such cases where a large amount of tissue is lost in gun-shot wounds. The great advance in the methods of reduction of fractures of these parts is worthy of the physician's study—particularly of multiple fractures of the superior maxillæ. The introduction of the skull cap for the support of splints for fractures of the bones of the face and mouth marks a rapid advance in the treatment of this class of fractures.

5th. *The various forms of necrosis of the maxillæ,* such as dental necrosis, alveolar necrosis, necrosis from lack of room for third molars, syphilitic necrosis, mercurial necrosis, exanthematous necrosis, phosphor necrosis, and necrosis from injuries.

6th. *Anchylosis of the maxillary articulation.* This heading should include acute synovitis and arthritis.

7th. *Antral diseases:* abscess of the antrum, empyema of the antrum, dropsy of the antrum, catarrh of the antrum, morbid growths of the antrum and their surgical treatment.

8th. *Trigeminal neuralgia.* This prolific heading is interesting in the study of the many causes that may produce this condition—

dental exostosis, impacted teeth, menstrual irregularities, pulp nodules, pathology of the Gasserian ganglion or its branches, together with their surgical treatment, are of interest to the physician and dentist alike.

9th. *Dislocations of the inferior maxilla*, their causes and treatment.

10th. *Congenital fissures of the lips and hard palate*. A study of the various methods of closure of the clefts and reduction of the hare lips.

11th. *The care of the mouths of women during the period of pregnancy*, a knowledge that should form a part of every physician's armamentarium, so often neglected. The chemical analysis of the oral fluids of women during this period, together with the prophylactic treatment of the mouth, is a necessity that every physician should recognize. The preservation of the teeth during this period is possible by a recognition of the modern methods for such that are in vogue to-day, and every physician should be taught them in the medical school.

12th. *Ranula*. A study of the delicate operation for the relief of an impacted body within the ducts.

13th. *Oral manifestations of syphilis*, a study of mucous patches and the so-called Hutchinson's test teeth: differentiation of honey-combed teeth, together with the ever present eye affection as an accompaniment.

14th. *A complete study of the benign and malignant growths* that frequent the mouth, with their operations.

These are some of the most important headlines that should be involved in such a chair as I have spoken of and for which men are qualifying themselves. It is impossible for me to fully amplify these headings, from the fear of trespassing on time for more valuable papers. That I have, in rough outline, given you an idea of the scope of such a chair, I sincerely hope. The physician is the better qualified to render good service to his patient for having this special knowledge. My plea is to those of you who are particularly interested in teaching in medical schools. Each year the march of progress is making more strenuous demands for the completed product. Our doctors cannot be finished unless their foundations are laid in their schools. Cannot our schools of medi-

cine that have done so nobly in producing what they have, still add to their glory by supplementing to the curriculum the chair of Oral Surgery?—*Dental Review*.

THOUGHTS ON THE DEVELOPMENT OF CROWN AND BRIDGE WORK: WITH SOME PRACTICAL SUGGESTIONS. By H. Herbert Johnson, D.D.S., Macon, Ga. In order to refresh the memory and bring to mind a few incidents connected with the development of crown and bridge work, I have deemed it advisable to recite some facts connected with its past history. These statements are not made from memory, nor are they hearsay, but are matters of record, therefore their general correctness can hardly be doubted.

In Vol. xvii, page 403 of the *Dental Cosmos* (August, 1875), appears an article by Dr. H. C. Register, in which he describes a method of setting an artificial crown by using a vulcanite plate tooth backed with rubber. It was set by first filling the root-canal with a hardwood peg and afterward putting a threaded gold wire through the hard rubber backing into the wood post in the root. The crudeness of this operation and the prominence of the essayist leads us to presume that the setting of artificial crowns on the natural roots of teeth had made little progress toward any degree of perfection even as late as that date—1875.

In the November issue of the *Dental Cosmos* of the same year there is an exhaustive idea in crown work by Dr. Theo. F. Chuprein, then of Charleston, S. C., read before the Pennsylvania Association of Dental Surgeons. This idea, boiled down, is to fit a gold tube into the enlarged canal by threading one end and screwing it into place, depending on the threaded end to hold it securely. A disk with a split pin is then fitted to the ground surface of the root, and a plate tooth soldered to this, making a sort of modified Richmond crown, but instead of cementing, depending on the spring in this split pin to hold it in place in the previously adjusted gold tube. One advantage claimed was that it could be removed for repairs in case of accident to the porcelain facing.

The discussion which followed the reading of the paper is interesting. Dr. W. H. Trueman advised placing a small bit of

cotton in the split pin in order to assist in the spreading and keeping it tight and firm. Dr. E. H. Neall said that there had undoubtedly been great advancement in pivoting teeth in the previous ten years, yet he believed that little improvement had been made, so far as durability was concerned over the old method of wood pivots. The plan mentioned, he said, required very minute work, and was expensive. He had inserted but few pivots for several years, but these had given considerable satisfaction. Professor Buckingham said that he usually used wood pivots. He had used tubes, but seemed to consider it too much trouble. In former times many more roots were pivoted than at that time, and it had been customary to drive the wood pivots with a hammer; this, with the fact of the pivot being too tight, usually gave rise to trouble. In his later practice he forced them

FIG. 1.



FIG. 2.



FIG. 3.



up with a notched plugger, putting a little zinc chlorid to fill the interstices. He also used Hill's stopping and in some instances amalgam; in one case he had used amalgam and a silver post. In another case of short bite he had used a cross-pin tooth, which afterward broke. He then made a gold tooth which lasted six years. He had recently extracted seven pivot teeth in one mouth which were firm. Some of them had been worn twenty years. Dr. Wert said that he used very few pivot teeth, finding them too expensive. In making pivots he drilled through hickory wood in the root and inserted a gold wire.

In Vol. xxi, page 261, of the *Dental Cosmos* (May, 1879), in relating incidents of office practice before the New York Odontological Society, Dr. N. W. Kingsley said: "An interesting opera-

tion was performed in my office a day or two since by Dr. Richmond. As it was an excellent case upon which to demonstrate Dr. Richmond's plan, I called him in, and the result was one of the prettiest operations I ever saw." The operation spoken of consisted in making a Richmond banded crown for the broken-down root of a bicuspid.

Dr. Abbott, in the same meeting, said: "The process which Dr. Kingsley has spoken of I attempted to perform myself not long since. I had made an appointment with my patient, supposing I could readily obtain the services of Dr. Richmond to do the work for me, but was unable to find him." Dr. Abbott varied the operation a little, but made it substantially after Dr. Richmond's banded method. These crowns were all set with zinc oxychlorid, os artificiel, or Hill's stopping.

Dr. Wm. Jarvie, at a subsequent meeting of the New York Odontological Society, in the same year (1879), described a case very much after the style of the porcelain-faced disk crown commonly known as the Morrison crown, except that he did the fitting of the wire posts and disks to a cast previously taken of the mouth, instead of fitting it to the natural root in the mouth as we do now. This crown had no band and was fastened with Hill's stopping (guttapercha).

Dr. J. N. Crouse, before the American Dental Association at Saratoga in August, 1879, commended the process of setting Richmond crowns. He had had the pleasure of seeing two crowns attached together, one root carrying both; and liked it very much.

Dr. G. R. Thomas of Detroit said: "Dr. Richmond's method of fastening gold crowns on roots meets a want which all have felt. I have one in my own mouth, condemned to the forceps previously, but now doing good service."

The well-known Bonwill crown made its advent in the year 1880. An illustrated paper appears in Vol. xxii, page 410, of the *Dental Cosmos* (August, 1880), by Dr. W. G. A. Bonwill, in which this crown is minutely described.

On page 463 of the same volume is a paper on gold crowns by Dr. Eugene S. Talbot. In this paper he says: "The credit for the suggestion of gold crowns is due to the late Dr. B. Beers,

who settled in California in 1849. He received a patent for his invention in 1873. While in San Francisco in the spring of this year (1880) I had the opportunity of examining several crowns inserted by him and which had stood the test of more than seven years of service. Owing to the death of Dr. Beers, in 1874, but little has been done toward bringing this valuable invention to the notice of the profession."

Before the First District Dental Society of the State of New York in January, 1892, in discussing papers on crown work, Dr. E. Parmlly Brown makes the statement, which was not refuted,

FIG. 4.

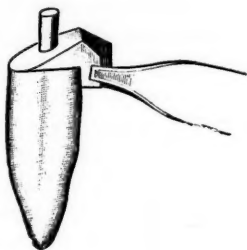


FIG. 5.



FIG. 6.



that not one-quarter of the members of the First District Dental Society were at that time furnishing bridges for their patients.

It would be exceedingly interesting to pursue the history and development of crowns further, bringing it right down to the present time, but the limit which has been placed on the length of this paper by the committee will prevent.

From the few historical facts recited we will come very aptly to the conclusion that modern crown work was almost unknown or very crudely performed until sometime after the year 1880, and that bridge work was not in general use as late as January, 1892.

In following carefully the development of crown work we deduce the following facts:

That the first methods in use were bandless crowns, imperfectly adapted to the surface of the root, and held mechanically by either a wood peg or threaded gold wire, or both. The absence of any

medium to close up the crevices between the surface of the root and crown usually resulted in failure by chemical disintegration of the root. In all instances where the roots were able to resist the ravages of recurrence of decay, and were not split open by the force of biting, the operation was of sufficient permanence to be considered a success. Even a partial success of the crude methods and imperfect materials cannot fail to impart to us a great amount of encouragement.

Then came the advent of the banded crown, which consisted of a band made of gold plate to encircle the entire circumference of the root and driven on tightly, even in many instances being forced up beneath the gum margin far enough to hide the presence of the band entirely. These were held in place by using some plastic material, as cement or guttapercha, to fill in the interstices to perfect the fit. Great difficulty was experienced in properly preparing roots for the reception of these bands, and equally great difficulty was found in fitting the band so that irritation and inflammation would not result. These banded crowns, however, in conjunction with the all-gold ferrule crowns, made possible that class of work which has proved such a blessing to mankind, *i. e.*, the modern bridge. This banding idea at first seemed to embody all the essential features necessary for the restoration of the lost natural crown, but it soon became apparent that while the necessary strength was obtained, the foundation was quickly jeopardized by the excessive inflammation set up, especially on the anterior surface where the gum tissue was thinnest and most susceptible to irritation. Recession of the gum would surely occur within a comparatively short time, leaving an unsightly band of gold exposed to view, and in many instances disclosing a misfit which had heretofore been considered quite perfect.

In casting about for something to take the place of this irritating band and yet give the strength necessary for permanence, various ideas have been suggested, among the first a half-band made of gold plate of about 22 k and No. 29 gauge, that should encircle only the palatal half of the root, with a disk burnished over the ground portion, and extending only to the gingival margin on the labial or buccal side. As the splitting of roots was nearly always

caused by the outward force of biting, this gave strength where it was most required. This arrangement was, however, more difficult to make than the whole band, as far as any perfection of fit was concerned, and while the tough gum tissue on the palatal side would stand a great deal of abuse, it also would in due time yield to this severe irritation and recede more or less rapidly.

Then, as a substitute to all the suggestions made and with the sole purpose of overcoming the band with its resultant objections, the Morrison style of crown came into use. The Morrison crown was made without any band at all. It was simply a disk of thin 24 k. gold burnished over the face of the root, with a platinum pin pushed through and soldered, and a porcelain facing attached

FIG. 7.



FIG. 8.



to this foundation. While this obviated the pain of fitting and the subsequent irritating influences of the band, it had not the strength which was the principal claim for its introduction.

Past experience is fast bringing the profession to a proper appreciation of the burnishing methods, employing the pliable thin 24 k. gold as the base in all methods for restoring large portions of lost crown tissue. Cast gold fillings or burnished crowns, brought so prominently to our attention and used with such artistic results by Dr. C. L. Alexander of Charlotte, N. C., will in a great many instances completely restore a tooth to its former shape and usefulness without rendering necessary the employment of an encircling, irritating band of gold plate, and is always to be preferred when indicated.

Taking advantage of the ease of adjustment and perfect adaptation possible with the burnishing methods before spoken of, I have for some years employed these ideas in all crowns of the porcelain-face class with great satisfaction, and likewise in many of the all-gold telescoping crowns. These suggestions are therefore advanced with a view to overcoming some of the weak points and objectionable features of many of the more modern crown ideas and in the belief that they are thoroughly practical. While the method is not startlingly new, some features of it have not to my knowledge been heretofore illustrated in any publication.

In preparing the root for the reception of this crown it is advisable to leave as much of the palatal portion of the root as the conditions presenting will allow, cutting it very low in front, even a little below the gum margin, as illustrated by Fig. 1. Of course, the remaining enamel must be removed on the palatal side. The canal having been enlarged and a piece of iridio-platinum wire of suitable size and depth adjusted therein, a piece of 24 k. gold rolled very thin, slightly thinner than No. 36 gauge, is next selected with which to form the half-cap for the root. This piece of gold is cut wider than the greatest width of the root and considerably longer than the length of the face of the root from before backward, so that when the previously prepared piece of iridio-platinum wire is passed through and soldered, the conditions will be such as is illustrated in Fig. 2. The piece of gold is now burnished at the anterior third of the surface of the root sufficiently to indicate the exact margin, the piece removed, and all surplus cut away at this point, so that there should be no overlapping but just enough of the gold to cover exactly that portion of the face of the root to its margin, as illustrated in Fig. 3.

The approximal sides of the disk are next burnished to these surfaces and also to the extreme palatal portion, with the view of obtaining the half-cap. This burnishing will form some creases or ears at the two approximo-palatal points of the root. With a pair of pliers these creases are drawn tightly together, as shown in Fig. 4. These flaps or creases are then burnished down right and left into close adaptation to the respective surfaces of the root; in fact, all the surfaces are now burnished carefully

as shown in Fig. 5. On account of the thinness and pliability of the gold used, these laps can be burnished out completely, and the lapping is not objectionable.

The formed half-cap is now carefully removed, taking care to prevent a change of shape, and is painted inside with a solution of chalk mixture to prevent the solder from flowing through, and thickened and strengthened by flowing 22 k. gold solder all over the outer surface, as shown in Fig. 6.

This completes the formation of the cap, and the remaining steps are the same as in the making of any porcelain-face crown. The cap is placed on the root, a bite and impression are taken, a model is run, and after placing the whole in a crown articulator a facing is selected, ground, backed, and waxed to the cap now on the model, Fig. 7. The cap and facing are now united with solder, and the crown finished as shown in Fig. 8.

The claims made for the process are—Strength where needed to bear the strain of the outward force of biting; a cap accurately adapted and adjusted so that only a minimum amount of irritation, if any, will ever arise to cause after trouble. I may say that very thin platinum may also be used instead of the thin gold, where for any reason it may be preferred.

The value of this burnishing method in crown adjustment is very apparent, and can be varied to suit nearly all cases. The promise of permanence and durability which attends the operation of cementing porcelain inlays, and all work of like character where the interstices to be filled are to be reduced to the minimum, will lend additional encouragement to this class of crown work. In the future I feel sure that some such methods will be employed entirely, to the exclusion of all irritating bands.—*Dental Cosmos*.

DENTAL CREDULITY, AVARICE AND PROFESSIONALISM. By Dr. E. W. Ream, Crawfordsville, Ind. That there exists in the dental profession a disposition to believe things on slight evidence, and to credit the alleged discoveries of the pharmaceutical, electrical and bacteriological laboratories with remedies and aids to our professional needs without ourselves going into masterly investigation, no one will deny. Neither will anyone

deny that this disposition is a shackle on our profession which must be removed if we hope as a profession to rise nearer the ideal.

It would fill pages to enumerate the situations into which this dental credulity carries the practitioner. Mummifying remedies by the score lead the dentist astray from the definite and scientific information, formerly relied upon in the treatment of cases in which they are claimed to apply. Ad-Kon-Kor and its exhaustless list of associates thrust their claims upon him. Electrical devices in their myriad forms, enticing in their illusions, find a susceptible subject in the dentist. Even the field of dental hygiene is flooded with various remedies to aid the profession in the "care of the teeth," each claiming a superiority.

These so-called pharmaceutical, electrical and bacteriological laboratories give to their products a scientific hue that they may impose upon this susceptible dental credulity. To judge of their success, one need only note their financial condition; the conclusion will be that dental credulity is truly susceptible; and that professionalism suffers much in consequence.

You say, lack of education! Lack of education! Yes, but dental credulity is not confined to the practitioner who has a limited dental education. It reaches far into the ranks, and claims for its victims practitioners whose dental education should entitle them to respect, men and women who feel there is something—that somehow, will do in some way what scientific dentistry cannot do. In this something, somehow, in some way, we find the father of the ruthless, credulous, unscientific experimentation which many times thwarts the discovery of meritorious remedies that might be worked out by following scientific methods.

But dental credulity is not wholly to be deprecated. It has a legitimate field, and, when confined to this field, is a means which helps to make the symmetrical professional practitioner. The excess it is which causes weakness, and it is this excess which deserves our notice as a profession if we would check its downward tendency.

The profession, like the individual, has an intellect, moral sentiments, selfish propensities, and the social elements, and likewise is acted upon by exterior influences. When the commercial spirit sprang into existence in our nation a few years ago and impreg-

nated every commercial and professional field with avarice, the dental field got its full share of impregnation, and we have trusts in our midst to deal with, professionally, just as the chief executive has to treat them commercially.

This avariciousness calls into action the intellect of the dentist and uses the secretive, cunning, devising part of his nature to gratify the lust for gain. It overthrows the moral sentiments, and ignores their promptings to truthfulness; it leads the dentist behind his shield of dental credulity into institutions which rob him of any moral claim to professional honor.

It is when dental credulity and dental avarice lay their hands unitedly on the dentist that professional honor receives its most damaging blow. This blow is being delivered just now with telling effect. It is a blow that demands the attention of the profession; not only to note who is delivering it; upon whom in our ranks it is landing; what effect it is having upon them, and through them upon the whole profession; but also, what, as a profession, we are doing to counteract its influence.

These trusts are bold beyond any thought of being repulsed or reproved; avarice with them has no fear nor conscience and the following is a fair representation of the enticements put before dentists indiscriminately.

"Reasons why you should be a member of the Blank Association of Dentists."

1. You become part owner of the Blank preparations. The best for the teeth.
2. You profit in the earnings of the Blank business.
3. You receive large dividends regularly.
4. Your Blank investments are absolutely safe and gilt-edged.
5. You are associated in a dentists' corporation.
6. You have an investment in a marvelously growing business.
7. Your stock participates in dividends that in the past have amounted to hundreds of thousands of dollars.
8. You share in a business that is established, one that has already attained great success.
9. Blank stock can be realized on at any time at a profit.
10. The business is based on the co-operative profit-sharing idea.
11. Blank preparations are superior to all others.

12. The business has the strongest financial and ethical support.
13. Stock is being rapidly taken by the best dentists in the United States, which guarantees its success and safety.
14. By subscribing at once you get the immediate profit of the next regular dividend.

In these "reasons" the appeal is directed straight at dental credulity and dental avarice, to the latter faculty the more strongly because it affects the purse. What does it matter to a trust, how much the professional honor of a dentist has been sullied?

It frequently pats the dentist on his egotism with the remark, "It is not the money we want, doctor, so much as your interest and support." It has evidently studied the author who said, "Where a man's purse is, there his heart is also," more than the one who wrote, "The heart is not always with conscientiousness."

Other cases might be quoted, but this last appeal, which is made by most solicitors, "your interest and support," this is the noose which, once thrown over the dentist, strangles every atom of professional honor and binds him with that wonderful cord of credulity, and that cunning, strong chain of avarice so that he is no longer a free man, no longer at liberty to recommend to his patients things proven superior to the products of the trust to which he is chained.

This commercializing of the profession of dentistry has the double effect of destroying our claim to professionalism and of stamping us more distinctly as mechanical tradesmen; things which have been fought against by every dental association up to the present time.

Apparently there are three avenues through which betterment can be accomplished: whether these should be employed in whole or in part we would leave to your consideration.

The dental colleges can do much for the future of the profession; they always have wielded an influence for good, and their position for the future is more potent than any other force which has to do with this part of the question. By increasing the length of the college course or by instituting a chair whose especial duty it would be to investigate the products and the companies who make them, or by doing both, much good might be accomplished.

For an improvement of the present situation, we must look

to the legislators who could enact laws that would restrict the powers of these companies, or at least, subject them to a proof of the virtue of their output.

But for the present and the future, the situation can be most successfully handled by the Indiana State Dental Association. Since its organization the general statutes of dentistry in Indiana have gradually attained such strength that our association stands second to none in the union. The creation of a board, or the appointment of a committee from the members of the I. S. D. A., whose duty it would be to report to the association at its yearly sessions upon the merits of the different products of the various companies, would serve to bring out the necessity for legislation, if legislation is needed in the best interests of the profession to hold these trusts in their proper sphere.

From the days of Dr. Phenius G. Hunt and his associates in the Indiana State Dental Association the aim of the organization has been professional honor. Let us continue to do all we can to, at least, keep the standard as lofty as when we began; exerting our efforts in a way to improvement, if possible.—*Dental Summary.*

THERE IS "AN IDEAL OCCLUSION OF THE TEETH IN THE HUMAN JAWS." By Martin Dewey, D.D.S., M.D. The normal occlusion of the teeth to-day is the same as it was in the savage, for if we have a normal or an "ideal" occlusion of the teeth to-day, and the teeth be subjected to sufficient use, we shall find they will wear down the same now as they did formerly. The length of the overbite of the upper incisors and cuspids is governed by the length of the buccal cusps of the molars and bicuspid. We find that in teeth which have a normal occlusion and are subjected to a great amount of wear, the incisors and cuspids are always worn down "equally with molars and bicuspid." The "incisors and cuspids of the maxilla overlapping those of the mandible" was the condition existing in the savage before the teeth had suffered so from use. Nature built the human denture after a plan whereby all the teeth would receive an equal amount of wear if given proper usage, and this proper usage can only result when we have an "ideal occlusion."

As the molars and bicuspid are worn down, the mandible must

close farther forward, and travel a greater distance before the teeth occlude. The mandible traveling farther forward brings the edges of the incisors more nearly end to end, and wear results; so that by the time the molars and bicuspid are worn smooth we have the incisors worn down as well. In the savage the incisors and cuspids were used more than they are in man to-day, which also tended to cause them to become much worn. The fact that they were worn so smooth proves beyond a doubt that there existed an ideal occlusion, and we have that ideal occlusion to-day.

If the savage had fallen into the hands of someone who had attempted to improve his facial outline or dental apparatus by extraction, . . . normal occlusion would have been destroyed. The mention of the fact that the teeth are worn so smooth and even is the strongest proof that I could give of the existence of a normal or ideal occlusion. . . .

While the teeth of modern man may suffer from disuse because "our meat is softened in cold storage, and the cereals are ground," etc., yet this does not prove that malocclusion of the present day must be treated by the extraction of any of the teeth. Neither does it prove that modern man does not need an ideal occlusion any less than did the savage. Nor does a study of the evolution of the horse prove that the human family needs fewer teeth than it formerly possessed. It does not prove that nature is making mistakes to-day any more than she did in times past, and in times past they were very few—were so scarce that we have never found them.

Let us study for a few minutes the descent of the horse, and see how beautifully nature worked out her plans and always maintained an ideal occlusion. As conditions changed, the entire form and size of the ancestor of the horse changed, until we have the modern product. Likewise the teeth changed. We find that nature worked with a definite purpose, and made changes as they were needed. She did not produce many forms of malocclusion until she finally found the size, number and shape of the teeth and their occlusion; instead, we find that a certain shape, size and number present, and evolution was producing changes on some certain tooth or teeth, while the rest were not affected until the proper time. As these changes were taking place there always existed

an ideal occlusion of the teeth of the horse family; and so also we always have an ideal occlusion of the teeth of man. If nature intends man to have fewer teeth than he now has, some teeth will be lost, and the positions of the remaining teeth will be such as to have an ideal occlusion during those changes. A large number of cases of malocclusion will not be produced, but everything will go on evenly and with a definite purpose. As the change from many to few or from few to many teeth has been worked out in lower animals, we can expect the same to take place in man if nature demands it, and that without the production of malocclusions or the destruction of occlusion.

That physical degeneracies should overthrow nature's plan of an ideal occlusion seems to me to be an idea without foundation, either theoretical or practical. The more a person is a physical degenerate, the more imperative it becomes that he possesses a normal occlusion, and we should do all in our power to give him as many of the normal things of life as possible. Malocclusion is not the result of degeneracy, for "Degeneracy never caused anything; degeneracy is the result of something." (Dr. Kirk.) Fever does not cause the disease, but the disease causes the fever.

The bringing together of "individuals whose ancestors have existed long under different environments" is also held by some men as a reason why we cannot have an ideal occlusion to-day. It is claimed that from such a condition the child may inherit the facial bones of one parent and the teeth of the other. Just how such a condition can be brought about they fail to show, and modern embryology fails to bear out such a statement. The embryo is a growth from the fertilized ovum, the growth of which takes place by the division of cells and the formation of new cells. As we follow this cell-division and formation of the embryonic membranes, we find it is impossible, up to a certain time, to say what cell will be used in the formation of the facial bones, and which will form the teeth. The facial bones, jaws and teeth, with the exception of the enamel, are all derived from the same embryonic membrane; how, then, this inharmony, which is said to destroy all possibility of an ideal occlusion? If the child could be constructed from parts chosen from each parent, we might be excused for talking about malocclusions resulting from intermar-

riage of different races. Another thing which shows the weakness of such a theory as "the facial bones of one parent and the teeth of another" being present in a child is the fact that such conditions as are supposed to result from inharmonious inheritance are always reported in the permanent set of teeth. Dr. Angle has well said, "Is it not remarkable that nature should blunder in the relative sizes of the jaws and teeth in the permanent denture so often, and never commit this same blunder in the deciduous denture? Would it not be just as reasonable to expect it of her in the one set as in the other? and is not the evidence just as conclusive in the one case as in the other?" Indeed, the deciduous teeth would be more likely to be affected by such a condition than the permanent teeth, because they are formed and erupted before outside conditions have had much chance to act on the individual.

To advance the old theory of "large teeth and small jaws," even if in different words, is to me very foolish. And then to attempt to prove by it that an ideal occlusion does not exist is like a drowning man grasping at a straw. To claim that such cases as are supposed to result from intermarriage of races must be treated by extraction, and that nature makes such mistakes, may explain why some think that an ideal occlusion such as existed in the savage according to his type is different from what we see to-day. The fact that the teeth of the ancient and the modern savage show excessive wear of both the anterior and posterior teeth, only proves that an ideal or normal occlusion did exist, and was necessary for the proper use of the teeth from the standpoint of mastication. The loss of any of the teeth would have destroyed the occlusion and hindered the savage in the race of life, as well as have destroyed his facial type. The loss of any tooth in the human family to-day, even if the individual is supposed to be a specimen of physical degeneracy, will likewise destroy the ideal occlusion and facial beauty. The modern man to-day demands a normal occlusion as did the savage, from the standpoints both of use and of beauty. Nature intends he should have it, but the "odontocide" says, No.

Study nature and her laws, "interpret nature's wishes," and you will see that there does exist an ideal or normal occlusion of the teeth in the human jaws.—*Dental Cosmos*.

SOME MODERN THOUGHTS ALONG THE LINE OF ORAL HYGIENE. By Levi C. Taylor, D.D.S., Hartford, Conn. Read before Section III of the National Dental Association, Buffalo, July 25, 1905. Hygiene, we are told, is "that branch of sanitary science which pertains to the preservation of health."

As we review the teachings of some of the ancient practitioners to ascertain their conception of oral hygiene, we seem to find little of value outside the simple cleaning of teeth. In fact, how could it be otherwise?—for the limited knowledge of all was confined to the extracting of teeth and mechanics—a condition far too prevalent to-day, as the numerous gilded mouths of those we meet in our daily intercourse testify.

Among the later practitioners, Dr. John M. Riggs, in 1866-68, demonstrated his methods of treating "scurvy of the gums"—as it was then called. In the early seventies Dr. Riggs renamed it "disease of the gums." Some of our more fastidious friends have chosen to call it pyorrhea, a term very common and much abused at the present time.

That dental education has made great progress no one will deny. The late Dr. Noble once told me there was not a graduate in his class who possessed the requirements to enter the poorest dental college of the present day. It is the case in this as in other fields, that the broader education opens up new avenues, and in each decade the field broadens.

There is a portion of the human mouth which is conscientiously shunned by the rhinologist, he believing it to belong to the dental profession. Are we as dentists caring for those soft tissues, keeping them healthy and vigorous to the full extent, resulting in the health of our patient? Let each one answer.

One of the great drawbacks to progress is in the misunderstanding among ourselves. We use a term to convey a certain meaning, but we soon find others using the same term to convey an entirely different one. For instance, we speak of *prophylaxis* as meaning a surgical or manipulative treatment for the preservation of health, and *prophylactic* as meaning a therapeutic treatment for the preservation of health. Others use these terms alternately as though they meant one and the same thing, and in the next sentence we find they will speak of cleansing teeth.

The term *cleanse* is defined "to purify and make clean," which

in the broad sense has a slight meaning under the head of oral hygiene, but our dictionaries give us a synopsis to indicate that it is intended to be used as a religious term—i. e., "To walk in the light" of Jesus Christ, whose blood "cleanseth from all sin." Now, would it not be better, and make us stronger in our position, to leave this term to our religious friends, and confine ourselves to "prophylaxis," which has a much deeper meaning than the simple term "cleanse?" Prophylaxis embodies the principle of cleaning the mouth generally, and it also embodies the principle of stirring up the pericemental tissues to renewed vigor, making them hard and able to endure the most rigorous manipulation.

The uncivilized man who eats raw foods uses his mouth as a mill to grind and prepare them, and as he forces his teeth into these hard and rough substances the tissues are used with a vigor that civilized life seldom encounters; and even when it does we shrink from the task, complaining that "it hurts, the gums are tender," etc.

My experience has been that so long as we leave the mouth in this tender condition, decay of the teeth predominates to an alarming extent. Our patient, often half sick, is not aware of the cause of his condition. In many instances dyspepsia appears and much pain is caused the patient while digesting the food. In young people the trouble begins in a nervous debility, which, if allowed to continue, will result in what our medical friends call nervous prostration. In other instances general depression will follow, which finally results in rheumatic difficulties. These are some of the more common ailments developing from mouth conditions, but there are also multitudes of others. That a large percentage of these ailments of the human family can be cured by proper manipulation of the mouth there is not the slightest doubt.

When some of our dental friends inform their patients that their teeth are bad because of a bad stomach, we beg leave to differ with them. The stomach is bad because of the faulty condition of the mouth, which may be due to personal neglect or faulty handling of the mouth or faulty teaching on the part of the practitioner. We are, as dentists, teachers, and are supposed by the public to be familiar with cause and effect.

Can this nervousness be cured? I will answer, Yes, in most instances it can be cured by proper care of the mouth. "White

decay" in the mouth is a most dangerous factor to health, leading up to nervousness. Can white decay be controlled? Yes; but not with the usual methods employed, such as the use of gold and amalgam fillings. That a large percentage of the dental profession continues to attempt to save these soft teeth by the use of gold is surely lamentable to us as we view the numerous wrecks brought to our daily notice.

We seem to find only two of the materials used that accomplish the saving results so much desired. Guttapercha has proved a saver of teeth, but it becomes dirty and objectionable, and it is practically abandoned as a filling material. Phosphate cement has come to be recognized as a most valuable preserver of tooth substance. The choice of a material for the protection of our cement seems to lie between gold, porcelain, and amalgam, all of which have their places. As porcelain cannot be adjusted without much cutting and mutilating of the tooth it may be said to be limited to labial cavities, and even then, with the exception of color, gold can be adjusted so much better that it is preferable, and in all approximal cavities where it is possible to make a gold filling, the combining of a cement lining, thereby making it a hygienic filling, is many times more valuable than the metal in contact with tooth substance. To me the day is fast passing when first-class care of the mouth can be ascribed to him who clings to the ancient custom of placing gold in contact with the tooth.

What is this proper handling? First, restore every tooth to as near its proper form as possible by excavating to solid walls—notice that I do not say healthy, for the reason that the tooth substance is rarely free from irritation of the tubuli when decay is progressing rapidly, consequently it is not proper to call it healthy so long as there is inflammation. Having cut to solid walls, we proceed to fill, using cement in contact with the tooth—metal is too good a conductor of thermal change and too poor a tooth-saver to be allowed in conjunction with tooth substance. After placing a cement we proceed to protect it by the use of such metal as will best suit the case, always building into the cement while soft. After filling each tooth to its full size, we then proceed to stimulate the pericemental tissues by the use of sticks and pumice, for engine work in such cases is out of the question; I never have seen the better results obtained thereby—and, as far as I know, everyone

who has attained a considerable degree of proficiency in prophylaxis has come to the same conclusion.

Of late we have been confronted with the theory that it is of great importance to "blow out" the pumice after going over the mouth. I do not care to take any issue with friends on this point, for it surely will do no harm, but it is a question if it does much good. I think our colleagues would be serving their patients better if they would devote the time to a vigorous use of the stick. We are too much inclined to want to get over this service easily.

There has recently been considerable talk by many concerning the importance of chewing our food. That thorough mastication is an important factor I sincerely believe, but we must have conditions of health in the mouth at the start, or we shall find we have poisoned the food to such an extent that it will be a serious drawback. In all phases of dental service of any value there is a leading back to first causes. After we have removed this mouth infection I will agree heartily as to the importance of properly masticating our food. It is a plain duty on our part to first put the mouth in a good hygienic condition; then it is time to begin to talk of the proper use of the mouth. As we do this we shall soon see our patient returning to health, with sparkling eyes and glowing, rosy cheeks.

Dr. Soulen remarks, in the DENTAL DIGEST, May, 1905, that "One of the chief duties of the dentist is to remedy the ravages of dental decay and to use all possible means of averting it." The above is sound doctrine and worthy of full recognition, although I can hardly place as much value upon the use of syrup of hypophosphates of lime as he does in his article. He makes a splendid statement a little later in his paper when he says, "The most essential agent in the preservation of the teeth is cleanliness, for so great are the power of the factors of decay that, unless kept clean and aseptic, the best of teeth will be likely to fall a prey to caries." While the above is excellent as far as it goes, he seems to overlook an equally valuable part in the care of the mouth, i. e., the stirring up of the pericemental tissues so often referred to by our friend, Dr. D. D. Smith. In an article, Dr. Smith speaks of "Hypersensitive Dentin" as follows: "Hypersensitiveness of dentin is the result of pericemental irritation far more than of pulp irritation. The pericemental life of the tooth is markedly influenced by the irrita-

tive infection found always at the necks of untreated teeth. Removal of this infection is the removal of much of the cause of undue sensitiveness of dental tissue."

I consider this a most valuable statement, and my own demonstrations have for many years proved it to be true. I believe we should give our attention more in the latter direction, and it is here that so many stumble when thinking they can do this work with the dental engine. When those who have shown their ability along this line inform their friends of the impossibility of obtaining these results with the engine, there is at once an inclination to distrust the motives; but, as far as I am aware, all who have attained a leading degree of efficiency have come to the same conclusion.

It is not my intention to go into a detailed account of the multitudes of therapeutic remedies used in the treatment of septic teeth. Many of them have some value, but the more important factor in the treatment of septic teeth is the removal of all infected matter, when Dame Nature will care for the rest. This same principle when carried to perfection is what brings such beautiful results from the general care of the mouth.

Many practitioners are advocating this and that preparation without the slightest knowledge of why they do so, except that they have been told by some commercial men that if they thoroughly prepared a tooth and used their wash they would obtain such-and-such results. Stimulated by the instructions given, they proceed to try it, and results come. Had they been as faithful in the extirpation of septic material and left the colored water in the bottle they would have had equally good results.

When we are confronted by a deep pus pocket by the side of a tooth we work perhaps many hours and then find we have left just enough foreign substance on the tooth to produce pus. Discouraged and disheartened by failure, we are wont to try some chemical dissolvent—which we have found in aromatic sulfuric acid. While it is a very unpleasant remedy to use, it seems to attain the desired end, and has been victorious in producing a healthy tissue when we have failed to quite reach every point of deposit or necrosis.

The continued use of many of the preparations so vigorously pushed, or of the peroxids, will cause the enamel of the tooth to

grow pitted and rough, while a similar use of phenol-sodique (which is both antiseptic and germicidal) will stimulate the enamel to a hardening with a bright and glossy surface which we see only in cases treated by the said stimulant.

The one thing most needed to-day is not therapeutics, but more faithfulness in obtaining results by the common-sense methods of surgically dethroning decay and all irritating or septic matter in the human mouth.—*Dental Cosmos*.

SOME PHENOMENA OBSERVED IN FUSING PORCELAIN. By J. Q. Byram, D.D.S., Indianapolis, Ind. A great deal has been written within the last few years regarding porcelain inlays. Cavity preparation has been discussed pro and con and we have come to one conclusion, namely, that cavities should be prepared with as much retentional and marginal strength as it is possible to give them. The relative value of gold and platinum for matrices has also been discussed until we are of one accord, that platinum is par excellent for constructing matrices. But the fusing of porcelain has received less attention than any other phase of the subject. This, however, is just as exacting as any other step in the construction of the inlay. Many otherwise good inlays are spoiled in the process of fusing, and until we learn to fuse porcelain in a more scientific manner we may expect to meet with these failures.

In order to understand the principles of fusing porcelain, it is necessary to consider the ingredients of which it is composed. Such a consideration shows porcelain to be made up of three classes of substances. First, three basal ingredients which are very refractory substances, silica and kaolin, which, when heated alone, will withstand intense heat with practically no change, and feldspar, a less refractory substance, which, when heated to a high degree, undergoes liquefaction. Second, fusible substances, known as fluxes, which fuse at a lower temperature and increase the fusibility of the more refractory substances, and third, metals or their oxides used as pigments.

Silica (SiO_2) is the oxid of silicon, and is an infusible substance, insoluble in all acids except hydrofluoric, "but is slightly soluble in caustic alkalis." It forms about 13.5 per cent of the

basal mass. It adds strength and firmness to the porcelain and gives it a more translucent appearance.

Kaolin ($2 \text{ Al}_2\text{O}_3 \cdot \text{SiO}_2 + 3\text{H}_2\text{O}$) is the silicate of aluminum and is composed of aluminum oxid, silicon oxid and water. It is commonly spoken of as disintegrated feldspar. Through the natural process of decomposition feldspar loses its potassium oxid K_2O by the action of water and other agents. Kaolin forms about 4.5 per cent of porcelain. It is a very refractory clay when heated alone, but readily unites with feldspar when incorporated with it. When added to porcelain it gives plasticity, which property permits it to be molded and carved.

Feldspar ($\text{Al}_2\text{O}_3 \cdot \text{K}_2\text{O} \cdot 6 \text{ SiO}_2$) is the double silicate of aluminum and potassium. It is composed of aluminum oxid, potassium oxid and silicon oxid. The chemical difference between feldspar and kaolin is that feldspar contains potassium oxid, which kaolin does not, and kaolin contains water of crystallization, which feldspar does not. It composes about 82 per cent of the basal mass of porcelain and adds translucency to it. While feldspar is more fusible than either silica or kaolin, it requires more heat than can be produced in the electric furnace to fuse some grades of it.

The materials commonly used as fluxes, to increase the fusibility of porcelain, are sodium carbonate (Na_2CO_3), potassium carbonate (K_2CO_3), or some material containing the oxids of potassium or sodium. The more refractory ingredients, the flux and the color frit, are fused together in the preparation of the porcelain for the market. The fusion produces a chemical change, forming an indefinite compound from which none of the original ingredients can be removed except by some process which involves the destruction of other ingredients.

For experimental purposes cubes of porcelain 5 m.m. on each face, weighing approximately 2.5 grains* when thoroughly dried, were taken as a standard for making tests. All fusing was made in a Garhart furnace with a pyrometer attachment, which indicates the heat by electrical resistance recorded by a millimeter, and automatically cuts the current at any given degree of heat.

The first series of experiments were to determine the fusibility of the various porcelains. As porcelains are indefinite compounds they have no definite fusing point. Porcelains which ordinarily

vitrify from 2080 to 2400 can be fused on pure gold by giving them long enough time. The experiments showed that Brewster's enamel can be properly fused on pure gold in from 15 to 45 minutes. The difference in time depends upon the amount of heat applied. Brewster's foundation, Close's body (Justi's), requires from thirty minutes to one hour and fifteen minutes to properly fuse on pure gold. Brewster's crown and bridge, S. S. White's inlay, and Whiteley's inlay porcelains require from one to three hours to fuse on pure gold, while the Consolidated Co.'s high fusing inlay porcelain requires from six to eight hours to fuse on pure gold.

It was found that Brewster's foundation and (Justi's) Close's bodies could be fused on 10 per cent platinum solder, which fuses at approximately 2115 in from 15 to 30 minutes. Tests were also made with porcelains that ordinarily fuse at about 2300 on 15 per cent platinum solder, which fuses at 2175. It requires from 10 to 20 minutes to fuse Brewster's crown and bridge, S. S. White's and Whiteley's inlay porcelains.

In studying fused porcelain under the microscope, I observed that those porcelains which were fused at a lower temperature for a long time, presented more homogeneous and more highly glazed surfaces, while the surfaces of porcelains which were fused at a high temperature for a short time appeared more granular. The cubes were then fractured and the inner portion examined under the microscope. I invariably found that those porcelains which were fused for a long time at a lower temperature were more homogeneous in texture.

The next series of experiments were made to determine the relative porosity of underfused and overfused porcelain. In studying the surfaces of the cubes under the microscope it was found that the surfaces of overfused porcelain were covered with little blisters. Underfused porcelain appeared granular and less dense. While properly fused porcelain presented a denser surface, free from blisters.

The next experiments were to determine the effect of repeated contact of porcelain with the maximum heat required to fuse it. A cube of porcelain was fused at a definite degree of heat. Then a second cube was placed beside the first and both heated to the

same degree of heat. Then a third cube was placed beside the two and the three heated to the heat required to fuse them. This process was continued until the fifth cube had been fused. The first, second and third cubes were slightly overfused and were lighter in color, while the fourth was slightly lighter in color.

The next experiment was to test the effect of repeated heating of porcelain to the point of biscuiting. This showed that the porcelains would finally become fused and maintain their characteristic color.

It is a significant fact that underfused porcelain has a much duller color and is more opaque, while overfused porcelain becomes lighter and tends to be more transparent. If porcelain remains in contact with the maximum heat long enough it fuses into a glass-like globule. All the shades of a color from a normal to a light may be obtained by increasing the heat above the maximum fusing point of the porcelain, but this is done at a sacrifice of its strength.

It is also a fact that porcelain can be fused, then ground and refused at a lower temperature than the first fusing. And if this process of refusing and regrinding be repeated a number of times, a high fusing porcelain becomes low fusing. It was also found that the repeated fusing and grinding of the porcelain changed its properties.

The following deductions result from these experiments:

1. That porcelain has no definite fusing point.
2. By prolonging the time of exposure to heat a thoroughly fused porcelain may be obtained at a comparatively low temperature.
3. That porcelains fused at a lower temperature for a long time will maintain their characteristic color.
4. That low fusing porcelains will result from high fusing porcelains by repeated fusing and grinding.
5. If a piece of porcelain is thoroughly fused and more porcelain added and fused, the first layer will be slightly overfused. That is the process of applying porcelain in layers and fusing each layer; the underlying layers will be slightly overfused and somewhat lighter in color.
6. That porcelains containing a large percentage of flux are

affected more by bubbles than those that are more nearly composed of the basal ingredients.

I believe the method of constructing inlays of two bodies differing in fusibility to be the correct one. The foundation body can be thoroughly fused, and when the enamel colors are placed in their respective locations and fused, the two porcelains give a more natural combination of color than can be produced by a single body.

Many porcelain workers prefer to apply each layer of enamel and thoroughly fuse the porcelain before the next layer is applied. But I prefer to apply each layer and fuse to a high biscuit, only heating the porcelain to the point of glazing at the final fusing. If a layer of porcelain is fused and then another layer of the same material is added and thoroughly fused, the first layer will be slightly overfused. Hence in the process of applying porcelain in layers and fusing each layer, the underlying layers will be slightly overfused and somewhat lighter in color.

In the selection of colors for an inlay note the variation in color of the natural tooth. There are usually three or more colors, or shades of colors, in a tooth. The foundation of an inlay, representing the dentin, should be yellow (presuming that the tooth has a pulp), and the overlying colors should approach the color of the enamel in their respective positions. If the matrix lining is to be used, a thick layer should cover the matrix to within one-half millimeter of the margin and be fused to a high glaze. The foundation body should be applied over the white porcelain and be contoured to replace the dentin. It should be fused, provided it is of a higher fusing porcelain than that used to replace enamel. Care should be taken to prevent porcelains of different colors from mixing when applying them to their respective positions. If the colors are applied separately and biscuited, then a uniform color applied over the entire mass and properly fused, the colors will be true, and the fused porcelain will approach more nearly the natural tooth structure in appearance.

The uniformity of color in porcelain is dependent upon the accuracy of the fusing. It is difficult to fuse porcelain at a definite degree of heat without some means of measuring the degree of heat used. Many otherwise good inlays are spoiled in the furnace.

Then, too, variations of the heat of the muffle will cause differences in the shade and the strength of the porcelain. Underfused porcelain is of a duller hue and is less translucent, while overfused porcelain is lighter and has more of a glass-like appearance.

There is a difference of opinion as to whether the fusing of porcelain is a chemical reaction or a physical change. Some of the best porcelain workers believe it is entirely a physical change, caused by the liquefaction of the feldspar and flux, which flows around the more refractory substances and agglutinates the mass (Richardson's *Mechanical Dentistry*; also personal letters from various porcelain workers). Others believe that it is both a physical and a chemical change by means of which certain ingredients are united chemically. Because of the fact that porcelain is an indefinite compound it is impossible to determine the definite chemical reaction that takes place during the process of fusing.

While the process of fusing may be largely a physical change, there are, however, some phenomena that are difficult to explain by this theory. If it were largely a physical process the low fusing fluxes would burn out more readily. There would not be such a variation in the degree of heat required to fuse porcelain. The fusibility of porcelain would be increased, instead of decreased, by the process of refusing and regrinding. High fusing porcelains could not be fused at a lower temperature; neither would they tend to form glass when overfused.

I believe the process of fusing porcelain to be largely a chemical reaction, brought about by the various ingredients combining under intense heat to form multiple silicates of aluminum, potassium or sodium with the liberation of carbon dioxide and other gases.

In conclusion I wish to protest against the method of fusing porcelain at its maximum temperature for a short time. It makes the porcelain more brittle and causes the formation of minute bubbles throughout the mass. The intense heat required to fuse the porcelain in a short time causes the generation of gas faster than it can escape. Dr. J. E. Nyman, in the *Dental Cosmos*, October, 1905, very aptly says: "The truth of the matter is, many have been broiling their porcelain instead of baking it, and a porous instead of a homogeneous mass has been the result."—*Dental Review*.

PARTIAL LOWER DENTURES. By L. P. Haskell, D.D.S., Chicago. For partial lower dentures vulcanite seems to be best adapted to the peculiar conditions of this class of cases. A plaster impression is needed most emphatically, because so much depends upon an accurate fit. Of course these form the most difficult class of cases of which to obtain an impression. It is often difficult to find a proper tray, as they are almost universally poorly adapted to the case in hand. I secure the best one I can, and trim quite extensively the margins which are too deep. If an old tray is not quite deep enough it is easy to add wax to the outside.

The plan of taking an impression first in wax or modeling compound is objectionable for the reason that the plaster would be so thin in many places, where it separates in removal, and which is the salvation of the whole thing, the pieces could not be saved.



No. 1

It is necessary to have as little plaster as possible on the outside, with greatest bulk on the inside, so in removal the impression may be forced back into the mouth, thus preserving the integrity of the really important feature. If there are one or more teeth standing alone put a piece of iron wire into the impression of such teeth.

As the teeth should be arranged according to the mouth, necessitating placing the wax plate in the mouth a number of times, imbed a piece of small iron wire in such plate as a stiffener.

The great trouble with these partial dentures is their liability to break. This can be obviated by a reinforcement of gold, as follows:

After waxing up the case, having it as thin as possible, make a pattern of lead or tin, about one-quarter inch wide, extending past all open spaces. Using clasp gold of 26 gauge, shape it with fingers

and pliers to the wax surface. Platinum loops can be soldered to the inner surface to hold the gold to the rubber, or what is easier, punch loops with the loop punch such as used for aluminum plates, Fig. 1.

To hold this gold in place while packing the rubber, solder a strip of metal of any kind to the lingual surface. This holds the gold to the plaster and is to be cut off in finishing, Fig. 2.

It should be borne in mind that the common habit of extending these partial lower plates no higher than the necks of the teeth is very objectionable for several reasons. First, the plate is constantly settling as the process recedes, worse than in the upper jaw. As it thus settles, the points of vulcanite denude the necks of the teeth and cause serious irritation. In the second place, as a rule, the lower denture has to be worn narrow on the lingual side,



No. 2

especially over the frenum, making a weak plate. In the third place, the plate is worn with more comfort if extended up over the necks of the teeth. Of course, if the patient feels pressure upon any tooth it should be relieved, always calling attention to it when inserting the denture.

It is a good plan to use a clasp on a tooth, one being all that is needed. The best clasp for this work is made of wire. Using 18-gauge wire, an inch and three-quarters long, double it with the pliers not quite close together. Fit it to the labial surface and side, then bend the ends at right angles to be imbedded in the rubber. This should be fitted before arranging the teeth, then lay aside, arrange the teeth and wax up the case, leaving room for the clasp, and taking it in the pliers, heat and drop into place and cover the ends, Fig. 2.

To be sure that the clasp is not moved in packing the rubber,

cut away part of the plaster tooth, wet it thoroughly, and cover with plaster all the clasp in sight, leaving the plaster in such shape that it will draw from the opposite flask. Here is the very best clasp for partial lower plates, easily made and adjusted and cleaner than the gold band.

Too much stress cannot be laid upon making the lingual sides of lower plates so narrow as not to be lifted by the muscles, glands and loose integuments. This is very largely overlooked by dentists and causes the patient much trouble. The patient should be reminded that the lower denture is more liable to cause irritation of the membrane than an upper denture, but can and should always be relieved at once.—*Dentist's Magazine*.

GOLD VERSUS PORCELAIN AS A FILLING. By Willis A. Coston, D.D.S. There is now a wave of enthusiasm about porcelain, many essays being written on the subject, proclaiming it to be the best filling, and that it should be used for filling all cavities in all places in the teeth, front and back. It is also maintained that the filling can be accomplished in less time, with less pain and annoyance to the patient than would be caused by other methods. The enthusiasts seldom announce that it will last as long as gold, which shows a refreshing degree of conservatism on their part.

Most practical men believe only a part of that which emanates from these extremists, but there may be some younger dentists who accept these statements as facts, and it is to these young men that this paper is addressed.

The use of porcelain for decayed or broken down teeth was brought about because the materials previously used for the purpose did not harmonize in color with the natural organs. In other respects gold is a better filling material than porcelain; although it is claimed that porcelain, being a non-conductor, is superior to a metal. But probably utilizing the inlay method with gold filling would render the gold as free from that objection as is porcelain. It is quite within reason to claim that gold is a better filling than porcelain because of its ductility and adaptability. Being ductile, the edges of the filling do not chip away, as is the case with porcelain, and, being adaptable, it does not require such specific cavity formation as does porcelain.

Granting that for utility and durability gold is the better filling

material, there is only one substantial reason for using porcelain in preference to gold for filling teeth; that is, the esthetic effect. To the conservative man this applies to those cavities where, because of their conspicuousness, the cosmetic effect is of paramount importance. That is, where the glaring lack of harmony in color will more than offset the strength and durability which attends a gold filling, however good, where the friability and consequent weakness of porcelain is more than counterbalanced by the fact that it so closely simulates the natural organs.

To those who are more extreme in their ideas of the desirability of porcelain, it has a much broader application, embracing cavities in the anterior six—the bicuspid and molars, on the occlusal, approximal and buccal surfaces, even some going so far as to advise it in third molars. It is a serious question whether we are rendering to our patients the best possible service when we fill cavities in the occlusal surfaces of masticating teeth with porcelain when they can be filled so nearly to perfection with gold, even though it does not harmonize in color as closely as porcelain. He must be expert indeed who can preserve badly decayed third molars better with porcelain than with the use of amalgam or a crown. All small fissure cavities demand gold in the occlusal surfaces of molars and bicuspid, the lingual fissure in the upper molars and the buccal fissure in the lower molars. Cavities at the buccal or lingual gingival border in molars can be filled with porcelain or amalgam. If the cavities are well defined and of sufficient depth, porcelain is permissible, but if shallow the preparation for an inlay would be unnecessarily painful in most cases.

It is safe to adopt the rule that in all cases where utility and durability is of first importance, no attempt should be made to use porcelain, but where the cosmetic effect is the principal consideration, do not fail to use porcelain.—*Kansas City Dental Journal*.

GOLD AND TIN. By I. J. Wetherbee, D.D.S., Boston. Read before the Massachusetts Dental Society. The object of this paper is to present a method of using tin and gold in combination, whereby I believe the valuable qualities of both metals are brought into use. Further, some of the features attendant on the use of tin considered by many objectionable are overcome.

In the first place, I wish to say that I consider that the value of tin as a preservative agent of tooth-structure has not been sufficiently appreciated in recent years. I believe that its uses and possibilities have been the most persistently neglected of any of the filling materials used by the profession.

It seems to me that only an unfortunate experience could have been responsible for an attack made upon tin during the past year, the paper to which I refer having appeared in the *Dental Cosmos* July, 1905, wherein tin is accused of being responsible for the formation of stannic acid with a consequent blackening of tooth-structure and destruction of the dentinal tubuli, ending in devitalization of the pulp. The essayist also spoke of the tin as being drawn away from the cavo-surface angle of the cavity toward the gold, thereby inviting decay in the space thus occasioned.

To the first of these assertions I will say that to prove the formation of stannic acid in any case will require something more logical and convincing than the mere statement without one shred of fact to bolster the contention. As to blackening of tooth-structure as a result of using tin, I will quote Dr. E. T. Darby, who, in one of our standard text-books on the subject, says, "The discoloration is confined on the surface, and the teeth filled with tin are not discolored in consequence of its presence." As to the second assertion, that the tin is drawn away from the cavo-surface angle of the cavity by the gold, I should say that if space were ever found to exist at that point it was primarily due to the fact that the tin had never reached the destination intended by the operator, for once firmly anchored in position no affinity could disturb the tin.

As it is intended to make this paper a short one, I will proceed to a description of the method I employ in combining tin and gold.

The cavity preparation for this method of tin and gold filling requires no pits nor grooves, in fact they are a detriment to the successful packing of the tin in place. Although the modes of cavity preparation necessary for soft gold and tin have been associated, yet I assure you there are a great many cases impossible with soft or cohesive foil which are comparatively easy to fill with tin by using a heated point in packing.

First, a mixture of Abbey's soft gold, varying in thickness from four to eight or sixteen layers, is placed in position next to the tooth-cavity wall, which effectually prevents any darkening of tooth-

structure; into this is packed the tin which has been formed into a narrow ribbon from a sheet of foil and cut into pieces the sizes of which vary according to the shape and form of the cavity. It is well to have a slight excess of tin before the work of condensing is started. The most important step in the process I consider to be the packing of the tin into place with a point heated as much as the tooth will stand. It seems to me that in any manipulation of tin this is indispensable, and we must remember in this connection that tin is only one-fourth as good a conductor of heat as is gold. I wish to say with all the force of which I am capable, that to my mind tin owes all of its powers of conservation of tooth-structure to the perfect mechanical adaptation of which it is capable, and absolutely none to any chemical reaction which inhibits carious action recurring. The packing should continue until the desired fullness is attained, when a sharp-bladed burnisher is used to cut away the superfluous tin at the margins, also to cut the entire tin surface till it presents a smooth, bright surface. We are now ready to add our cohesive foil to the tin, which is done by beginning with thin pieces of the foil and burnishing them on to the tin surface by means of an ivory burnisher.

The first pieces must be thin in order to cohere to the tin surface. I fold a sheet of cohesive foil twice, making four layers; from this I cut a portion of the end for the first pieces to be used, then continue folding till a narrow ribbon is obtained, after which I continue as in case of any ordinary burnished gold filling, finishing with disks and strips.—*Dental Cosmos*.

USEFULNESS OF THE CLAY PIPE.—Attention is again called to the use of clay pipe bowls broken at random, also stems cut crosswise or split lengthwise, as trays or supports for matrices and their contents, while undergoing fusion in the furnace; also for facings that are being backed by porcelain, and whole crowns—shell or other—during the baking process. The concave side of the bowl fragments affords an excellent support in nearly all cases, but this may be made perfect by the addition, as a bed, of a few grains of coarse silix. For very small inlays fragments of the stem are ideal, and for crowns armed with a platinum pin the hole through the stem supplies one of the means most needed to keep the work upright. In case depressions are called for, or the perforation is too small, a sharp penknife may be used to effect the required change. To many inlay-workers these fragments are a necessary part of their furnace outfit.—*Dental Office and Lab*.

The Dental Digest.

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At 2231 Prairie Avenue, Chicago,

Where All Communications Should be Addressed.

Editorial.

THE EDITOR OF "ITEMS OF INTEREST" ON THE RULES OF THE ILLINOIS BOARD.

We note with much surprise that the editor of Items of Interest, in a current issue, brands the rules adopted by the Illinois State Board of Dental Examiners as "the most audacious document which has ever been called to our attention."

We feel that such language is very strong indeed, that it is undeserved and out of place, and we can not reconcile the attitude of the editor with the facts in the case. We believe a brief review of the situation as it really is will prove the writer's views, in the main, erroneous, and show them to be the result of an evident lack of knowledge of the real status of affairs.

The editorial says, "Except for the line declaring that the 'rules' have been 'Adopted by the Illinois State Board of Dental Examiners,' the ordinary mind would conclude that they had emanated from some National Board of College Supervisors."

The ordinary mind being conversant with the more recent developments, would know that the rules adopted by the Illinois State Board of Dental Examiners did emanate, not from a "National Board of College Supervisors," for no such board existed, but from both the National Association of Dental Examiners and the National Association of Dental Faculties by joint agreement.

In view of this fact, is the Illinois Board taking refuge under the clause in the new Illinois law, which clause (Sec. 4) says the Board "shall make rules or regulations to establish a uniform and reasonable standard of educational requirements to be observed by dental schools, colleges and departments of universities," and further that the Board "may determine the reputability of

those by reference to their compliance with said rules and regulations"? Does the Illinois Board "imagine it has a legal right to regulate the conduct of all the colleges in this country" and is it "attempting dictation of and supervision over dental colleges"? Has Illinois "formulated a standard of reputability" and "placed the power of decision in the hands of its Board of Dental Examiners"? Is the act of the State Board of Illinois in addressing "a circular letter to the colleges announcing that if said schools do not agree to abide by the 'rules and regulations' therewith inclosed, prior to June 4th, they need not expect to see their names on the Illinois list of recognition," a "threatened boycott" to which "the faculties of the schools outside of Illinois must indeed submit" and thereby "exhibit a cowardice which would warrant general practitioners in never again recommending them to students as worthy instructors"?

The answers to these questions come easy, when one understands that the rules and regulations of the Illinois Board are not arbitrary and original with the Board, but are the result of the careful deliberations of both the National Association of Dental Faculties, an association of men from the reputable dental schools of the country, and the National Association of Dental Examiners, an association of representatives of the various State Boards of Dental Examiners of the country. These two Associations originated and formulated these rules with a high and noble purpose, believing that by united effort and harmony dental education would be benefitted and the profession credited.

The Illinois Board of Dental Examiners adopted these rules and regulations as formulated, because, with but very few exceptions, all the dental schools of the country accepted them.

The right of the Illinois Board to pass upon the standing and reputability of schools has been given to the Board by the schools themselves, and in this college agreement, as long as it is observed, the Illinois Board will find authority for the enforcement of its rules.

We do not care to enter into a discussion as to the legality or constitutionality of either the rules and regulations or the statute under which the Board acts (personally we think there are vulnerable points in both), but we do think there is much good in

the rules, the statute and the college agreement and that dentistry will be better for them all.

In conclusion we want to welcome and commend the efforts of any and all associations, organizations and boards that tend to elevate our standards. Rules and statutes are, as a matter of course, defective and far from the ideal, and will be as long as they are the result of compromises and bargains. Ideal conditions must come after a long process of evolution, after differences have been done away with, and after unity and absolute understanding have been established. We believe that "the prominent schools of the country" should not and will not "throw the Illinois communication in their waste-baskets, nor deposit it in their museums as a curio," but rather stand solidly together by the rules already laid down and accepted, and thus unite themselves for the common good.

Notices.

CLEVELAND DENTAL ASSOCIATION.

The Cleveland Dental Association will hold its next meeting May 7th, 1906.

OHIO VALLEY DENTAL SOCIETY.

The Ohio Valley Dental Society will meet at Steubenville, O., May 7th, 1906.

WISCONSIN STATE DENTAL SOCIETY.

The annual meeting of the Wisconsin State Dental Society will be held at Madison, July 17-19, 1906.

IOWA STATE DENTAL SOCIETY.

The forty-fourth annual meeting of the Iowa State Dental Society will be held at Des Moines, May 1, 2 and 3, 1906.

WASHINGTON STATE DENTAL SOCIETY.

The annual convention of the Washington State Dental Society will be held at Bellingham, May 24, 25 and 26, 1906.

SOUTHWESTERN MICHIGAN DENTAL SOCIETY.

The annual meeting of the Southwestern Michigan Dental Society was held at Niles, April 10th, 1906, and the following officers were elected:

President, C. H. Funk, Cassapolis; Vice-president, E. O. Lapirre, Paw Paw; Secretary and Treasurer, C. W. Johnson, Lawton.

INDIAN TERRITORY DENTAL ASSOCIATION.

The third annual meeting of the Indian Territory Dental Association will be held in Muskogee, May 17th and 18th, 1906.

NEW HAMPSHIRE DENTAL SOCIETY.

The New Hampshire Dental Society will meet at Plymouth, N. H., for its 29th annual session on May 8, 9 and 10, 1906.

NORTHWESTERN PENNSYLVANIA DENTAL ASSOCIATION.

The annual meeting of the Northwestern Pennsylvania Dental Association will be held at Cambridge Springs, May 15, 16 and 17, 1906.

LAKE ERIE DENTAL ASSOCIATION.

The forty-third annual meeting of the Lake Erie Dental Association will take place at Cambridge Springs, Pennsylvania, beginning May 15th, 1906.

SOUTH CAROLINA DENTAL ASSOCIATION.

The thirty-sixth annual meeting of the South Carolina Dental Association will meet at the Isle of Palms on June 26th, 1906, for a three days' session.

CENTRAL TEXAS DENTAL SOCIETY.

At the annual meeting of the Central Texas Dental Society, held April 16th, 1906, the following officers were elected: Frank Forman, Waco, President; E. P. Gould, Temple, Vice-president; J. M. Murphey, Temple, Secretary and Treasurer.

WESTERN DISTRICT (MASS.) DENTAL SOCIETY.

At the annual meeting of the Western District Dental Society, held at Pittsfield, April 16th, 1906, the following officers were elected: Secretary, E. A. Schillinger, Lee; Treasurer, W. H. Fallon, Pittsfield; Executive Committee, G. A. Hall, North Adams; Member of the Board of Councilors for five years, G. A. Hall.

FOURTH DISTRICT DENTAL SOCIETY OF NEW YORK.

The Fourth District Dental Society of New York held its annual meeting in April, 1906, and the following officers were elected: President, E. B. Rhinehart, Schenectady; Vice-president, George Shannon, Cambridge; Secretary, Frank Grennan, Schenectady; Treasurer, E. Doolittle, Saratoga; Correspondent, R. H. Whitmyre, Schenectady.

COLUMBUS DENTAL SOCIETY.

On April 23d the Columbus Dental Society held a banquet and elected the following officers: President, H. C. Brown; Vice-president, L. P. Bethel; Secretary, R. R. Smith; Treasurer, W. B. Kiger.

CENTRAL PENNSYLVANIA DENTAL SOCIETY.

The seventh semi-annual meeting of the Central Pennsylvania Dental Society was held April 10th, 1906, and the following officers were elected: President, C. W. Brown, Altoona; Vice-president, W. C. Wilson, Huntington; Secretary, H. E. Crumbaker, Altoona; Treasurer, H. A. Wehrle, Altoona.

FIFTH DISTRICT DENTAL SOCIETY.

The thirty-eighth annual meeting of the Fifth District Dental Society of New York was held April 10th and 11th, 1906, and the following officers were elected: President, E. A. Smith, Rome; Vice-president, J. C. Curtis, Fulton; Recording Secretary, C. A. Sayers, Watertown; Treasurer, R. C. Turner, Oswego.

SOUTHEASTERN DISTRICT (MASS.) DENTAL SOCIETY.

The annual meeting of the Southeastern District Dental Society was held April 25th, 1906, at Fall River, and the following officers were elected: Secretary, Owen J. Eagan, Fall River; Treasurer, E. L. Jewett, Plymouth; Executive Committee, S. T. Towle, A. P. Rogers and A. F. McCann, all of Fall River; Councilor, T. P. Sullivan, Fall River.

THIRD DISTRICT DENTAL SOCIETY OF NEW YORK.

The Third District Dental Society of New York held its thirty-eighth annual meeting in Albany, April 18th, 1906. The following officers were elected: President, W. E. McCarthy, Troy; Vice-president, Charles A. Allen, Albany; Secretary, C. H. Bird, Troy; Treasurer, P. S. Oakley, Troy; Correspondent, F. L. Ames, Albany; Editor, L. S. Blater, Albany.

WISCONSIN STATE BOARD OF DENTAL EXAMINERS.

The next meeting of the Wisconsin State Board of Dental Examiners for examination of candidates for license to practice dentistry in Wisconsin will be held Monday, June 18th, 1906, at the Wisconsin College of Physicians and Surgeons, Milwaukee, Wis.

Application must be made to the Secretary fifteen days before examination. The candidate must be a graduate of a reputable dental college, or have been engaged in the reputable practice of dentistry for four consecutive years, or an apprentice to a reputable dentist for five years.

For further particulars apply to

J. J. WRIGHT, Secretary,
1218 Wells Bldg., Milwaukee, Wis.

SOUTHERN MINNESOTA DENTAL SOCIETY.

The annual meeting of the Southern Minnesota Dental Society was held at Mankato, April 9th, 1906, and the following officers were elected: President, J. R. Hollister, Sleepy Eye; Vice-president, E. J. Yerke, Owatonna; Secretary, W. A. Demo, Blue Earth; Treasurer, M. B. Wood, Mankato. Dr. Yerke was elected chairman of the program committee for next year.

VALLEY DISTRICT (MASS.) DENTAL SOCIETY.

The annual meeting of the Valley District Dental Society was held in Springfield, Mass., April 16th, 1906, and the following officers were elected: Secretary, C. Wesley Hale; Treasurer, A. G. Doane, Northampton; Executive Committee, C. S. Hurlburt, Chairman; E. T. Sherman and F. H. Saunders of Westfield; Councilor for five years, W. H. Jones, Northampton; Librarian, D. Hurlburt Allis.

CONNECTICUT STATE DENTAL SOCIETY.

The Connecticut State Dental Society held its forty-second annual meeting April 17th and 18th, 1906, and elected the following officers: President, A. W. Crosby, New London; Vice-president, Frederick Hindsley, Waterbury; Secretary, E. S. Rosenbluth, Waterbury; Treasurer, W. O. Beecher, Waterbury; Assistant Secretary, A. V. Prentiss, New London; Executive Committee, F. T. Murlless, Jr., Windsor Locks; F. W. Brown, New Haven, and E. J. Erbe, Waterbury.

NATIONAL ASSOCIATION OF DENTAL SALESMEN.

The first annual meeting of the National Association of Dental Salesmen was held coincident with the big Manufacturers' and Dealers' Meeting at the Auditorium, Chicago, March 26th to 30th, 1906.

The following officers were elected for the ensuing year:

C. A. C. Kelley, President, Buffalo, N. Y.

Oscar Beig, Vice-president, Philadelphia, Pa.

H. J. Bosworth, Treasurer, Chicago, Ill.

Judson Stackhouse, Secretary, Buffalo, N. Y.

The following were elected as vice-presidents to represent the Association in their different sections:

C. N. Bowe, Chicago, Ill.

William Doeloff, Boston, Mass.

H. Q. Altenberg, Des Moines, Iowa.

H. A. Callis, Norfolk, Va.

L. H. Herman, Brooklyn, N. Y.

Dr. O. B. Price, Moncton, N. B., Canada.

WEDELSTAEDT CLUB OF IOWA.

The E. K. Wedelstaedt Club of Iowa and the G. V. Black Club (Inc.) of St. Paul, Minnesota, will hold a joint clinic in Clear Lake, Iowa, on June 25-26, 1906.

A cordial invitation is extended to all reputable practitioners. There will be reduced railroad rates on all roads to this summer resort. For further information address

WILLIAM FINN, Secretary,
Room 28, Kimball Bldg., Cedar Rapids, Iowa.

LATEST DENTAL PATENTS.

- 12,470. Reissue. Manufacture of acid-proof cement, Richard Liebold, Weimar, Germany.
815,374. Tooth mold, Evelyn Pierrepont, London, England.
815,534. Toothpick and forming same, Henry S. Hopper, Norfolk, Va.
815,807. Dental plate swage, Grant E. Freeborn, Belfast, N. Y.
815,907. Dental expander or dilator, Cleveland G. Davis, Manistee, Mich.
816,069. Dental tool or clutch, Benoni S. Brown, Onset, Mass.
816,481. Cap and brush for bottles, Johnson Lane, Jamestown, Cal.
816,668. Dental instrument for raising barbs upon wires, Lloyd S. Lourie, Chicago, Ill.
816,685. Shield and moistener for dental tools, Charles A. Sevier, Jackson, Tenn.
816,828. Dental contour pliers, Nathan H. Smith, Seattle, Wash.
817,050. Dental floss holder, Joseph C. De La Cour, Conshohocken, Pa.
817,978. Toothpick, Albert E. Lickman, Baltimore, Md.
818,000. Tooth-brush, Charles R. Stevenson, Boston, Mass.

News Summary.

- S. H. LETSON, a dentist of Norcross, Ga., died April 21, 1906.
J. T. McMILLAN, a dentist of Paris, Ky., died April 24, 1906.
SIDNEY L. GEER, a dentist of Norwich, Conn., died April 18, 1906.
J. L. ALLEN, a dentist of Searcy, Ark., died April 18, 1906, at St. Louis.
WILLIAM ARTHUR POWERS, a dentist of St. Paul, died April 17, 1906.
D. M. KELSEY, a dentist of McCloud, Okla., died early in April, 1906.
T. S. DICKINSON, a dentist of Sidney, Ohio, died suddenly, April 17, 1906.
JOSEPH N. DAVENPORT, a dentist of Northampton, Mass., died April 13, 1906.
WARREN DECROW, a dentist of San Francisco, was killed in the recent earthquake.

W. EDWARD WALLACE, a dentist of Ottawa, Canada, died suddenly April 8, 1906.

JOHN R. LOCKE, a dentist of Lewistown, Pa., died of pneumonia early in April, 1906.

DEWARD BOYD, a dentist of St. Thomas, No. Dak., died in St. Paul, Minn., April 8, 1906.

E. L. KISER, a dentist of Quasqueton, Iowa, accidentally shot and killed himself April 19, 1906.

BENJAMIN F. SCHUYLER, a dentist of Rochester, N. Y., died of heart disease April 22, 1906.

J. SYDNOR MASSEY, a dentist of Comorn, Va., died after a long illness of rheumatism April 6, 1906.

SPENCER M. NASH, a dentist of New York City, died from a complication of diseases April 18, 1906.

L. A. GAMBLE, a dentist of McLeansboro, Ill., died at Enfield April 5, 1906. He had been totally blind for 14 years.

WARREN H. TILLINGHAST, a dentist of Providence, R. I., died April 9, 1906, from a complication of diseases caused by falling through a trap door some time before.

BANKRUPTS.—Clarence J. B. Stephens, a dentist of Great Falls, Mont., April 24th, filed a petition in bankruptcy, giving his assets as \$428 and his liabilities as \$1,836.83.

FIRES.—Dr. Sam Hunt, Trenton, Tenn., April 9, loss \$850, insurance, \$500.—Dr. Donohue, Port Huron, Mich., burned out April 8.—Dr. George O. McLean, Hartford, Conn. Loss slight.

CAUTIOUS.—Dentist, to patient who is opening his purse—Don't bother about that yet, Mr. Isaacs. You needn't pay in advance.

Mr. Isaacs—Excuse me. You say you gif me gas, and I count my money first.

POROUS PLATES.—In vulcanizing a case place the flask above the water-line, supporting it on an old flask or anything suitable. Use very little water, and you will not be troubled with porous plates.—A. C. PETERSON, *Dental Record*.

DAMAGE SUITS.—A suit for \$5,000 damages was filed against a dentist of Baltimore, Md., by a man who alleges that in pulling his tooth the dentist broke the jaw and thereby deprived him of the proper use of his jaw in masticating his food.

BAKE, NOT BROIL, PORCELAINS.—Dr. J. E. Nyman says: "I am quite confident that we have all been fusing our porcelains too quickly. You can obtain the same result by prolonging the time of the exposure, and cutting down the intensity. We have been 'broiling' our porcelain instead of 'baking' it."—*Dental Office and Lab*.

SEPARATING MEDIUM.—*Hints* says: "A good separating medium is made by dissolving paraffin in gasoline. Put in all that the gasoline will take up. To use, spread solution over impression lightly with a camel's hair brush."—*Dental Office and Lab.*

LOCAL ANESTHETIC.—The following is an admirable local anesthetic to be used before the opening of boils, felons, etc.: Chloroform, ten parts; ether, fifteen parts; menthol, one part. Spray on part with an atomizer.—*Monthly Cyclopedia of Pract. Medicine.*

MALOCCLUSION: DIAGNOSIS.—The careful observer may detect irregularities in the positions of the temporary teeth that are sure indications of malpositions among the permanent teeth that are not yet erupted.—E. A. BOGUE, *International Dental Journal.* (*Dental Brief.*)

A CASE OF TREATMENT.—The following scrap of conversation was recently overheard in the vicinity of a dentist's office:

"T'ought you was going to de dentist?"

"Naw! I t'ought I'd take this here absent treatment."

CEMENT LIMITATIONS.—No manufacturer knows how to make a cement for the dentist who doesn't know how to mix it, and won't learn. As the worst bread may be made from the best flour, so an inferior cement may be made from the best materials. You must select the best cement and you must mix it right.—*Dental Brief.*

PULP DEVITALIZATION.—I induce anesthesia by the use of cocain and suprenalin, mixing and using any dilutant I choose, as water, chloroform, or oil of cloves. I have not yet found a pulp in the six anterior teeth that will not anesthetize with but little pressure, without the use of rubber.—T. E. PURCELL, *Western Dental Journal.*

ORTHODONTIA AND RHINOLOGY.—Orthodontia is becoming recognized as a necessity in nose and throat treatment. Instead of the removal of turbinated bones to give room in the nasal tract, the better way is to expand the dental arch, which will normally enlarge the nasal opening and promote better breathing by purely natural means.—*Western Dental Journal.*

RECOMPENSED.—Fond Father—"No, my boy! I can't afford to take you to the circus.

Small Son—"Boohoo! Boohoo!"

Fond Father—"But if you'll be good and stop crying, you can go with mamma to the dentist's and see her teeth pulled."—*American Spectator.*

A METHOD OF MAKING INLAY TO RESTORE THE CORNER OF A CENTRAL OR LATERAL.—After the matrix is invested in sump and dried, puncture the matrix with an instrument near the cutting edge—which will be the heaviest part of inlay—sufficiently to push through a little way an ordinary pin broken from a vulcanite tooth. After the pin is in and left sticking up in your matrix proceed to build up and bake as usual. Before setting cut enough from tooth to allow room for pin and make an undercut. The inlay will never come out after set, unless broken.—A. C. GREENLEE, *Dental Summary.*

TO RESTRICT FLOW OF SOLDER.—In soldering gold, when it is desired to restrict the flow of solder to certain areas, with a sharp lead pencil draw a line around the desired area; the solder will not flow past the line. This is especially valuable in filling cusps of seamless crowns, to prevent the solder flowing up the sides of the crown.—F. W. FRANKLIN, *Western Dental Journal*.

FINAL POLISHING OF PLATES.—In giving the final polish to rubber plates, I find that a polishing wheel made of about twenty-five thicknesses of unbleached muslin gives a better finish than chamois skin or a soft brush wheel. The edges of the circles of cloth become frayed and do not scratch. I can get a finer polish with this kind of polishing wheel than with anything else I know of.—A. C. WILLMAN, *Dental Review*.

THE TEETH IN SICKNESS.—I have seen many mouths ruined by neglect during fevers. A dentist often never hears that his patient has had fever till the latter comes to have a lot of dental wrecks treated. I think it is the bounden duty of the doctor to enforce dental hygiene in all fevers and prolonged cases of illness, when patients are beyond the sphere of their dentist.—F. J. TURNBULL, *Dental Record*.

USE FOR SLATE PENCIL.—The suggestions that I give are not all original with me, and in calling them helpful I mean they have been so to me. One is: A common slate pencil is better for teasing solder than an instrument. The solder does not adhere to it and it does not heat up and burn the fingers. It can also be used for stirring fusible alloy.—A. C. WILLMAN, *Dental Review*.

ANCHORAGE FOR ALLOY FILLINGS.—Double-headed rivets made in assorted lengths from gold-plated brass wire about No. 23 or a trifle smaller afford positive anchorage for large alloy fillings in badly decayed molars and bicuspidis. The double-headed platinum pins for porcelain teeth are too expensive, too large for most cases, and not often of the right length. W. S. PAYSON, *Items of Interest*.

REPAIRING OR ADDING TEETH TO A PLATE.—The following is a quick way of repairing or adding teeth to a vulcanite case. Instead of pouring wax on the cast where the repair or addition is needed, place rubber on it by means of a hot, clean spatula. This may be entirely buried in the plaster when flasking, and immediately placed in the vulcanizer. I have never had a failure, and find it a most reliable method.—S. L. W., *Elliot's Quarterly*.

FATALITIES.—A woman of Osage, Ia., died in a dental chair April 3d after an anesthetic had been administered.—April 26th a woman of Los Angeles, Cal., died in a dental parlor from the effects of chloroform.—A man of Toronto, Ont., died two days after chloroform had been administered at a dental office.—A woman of Greenville, N. H., died April 23d from the effects of chloroform administered to relieve pain.—April 12th a woman of Highland, Minn., died of heart failure while chloroform was being administered.

CLEFT PALATE.—All surgeons are agreed that the cleft should be completely closed during the first few years of life, but the point yet to be decided is whether it is better to operate during early infancy or during early childhood. The author prefers, as a general rule, to postpone operating upon the palate until the child is between two and three years of age, and then at one operation completely close the cleft.—R. W. MURRAY, *British Medical Journal*.

CONTRIVANCE TO FACILITATE THE WAXING-UP OF PLATES.—In waxing-up plates it is very convenient to have some melted wax where you can use it at any time. A small tin cover may be riveted to a wire frame in such a manner as to keep it at the proper height above your Bunsen flame. The one I have is kept three and one-half inches above the flame, and at that height the wax is kept melted and yet does not boil over.—A. C. WILLMAN, *Dental Review*.

SOLDERING OF ALUMINUM.—Herr Wagner of Berlin recommends the following for soldering aluminum and its alloys: He uses a flux formed of 80 parts stearic acid, 10 parts zinc chlorid, 10 parts tin chlorid. Any ordinary soft solder can be employed, but the best is that composed of 80 parts tin and 20 parts zinc. After the dentures to be soldered have been cleansed and passed through the flux, the soldering is done in the usual way.—Z., *Quarterly Circular*.

HANDLING CHILDREN.—I would rather prepare with hand instruments and fill with cement in five minutes and replace later, than remove nerve with broach and bur and consume an hour for a permanent filling in the mouth of a child. I know if I only work five minutes and cause no pain they will come back again, but if pain is caused I am not certain, and a child never takes a back seat to advertise us even in the most public places.—C. WESLEY SIEFKIN, D.D.S., *Dental Brief*.

CHLORETONE.—A ten or twenty per cent solution of chloretone in 75 per cent alcohol is valuable as a topical application previous to the use of the hypodermic needle in the gums. The alcohol cuts the mucus and leaves the membrane absolutely clean, and sterilization of the field of operation results, while the anesthetic action of the chloretone is had in the tissues and the needle can be used with the minimum of pain and no possibility of septic infection.—T. A. GORMLEY, *Dental Register*.

TO PRESERVE DRUGS FROM THE ACTION OF LIGHT.—A prevalent notion is that where there is need to exclude sunlight from a substance, green or blue glass provides a complete solution for the difficulty. As a fact, green or blue glass is without effect in preserving such substances from decomposition by light. The most active rays are the actinic or ultra-violet rays, and these pass freely through green or blue glass which has little or no preservative action on medical substances. Mr. Smith's plea for the use of amber glass is thus based not only on experience, but also on physical considerations. In the paper read before the Sheffield Pharmaceutical and Chemical Society a striking example was given. An aqueous solution of

mercuric chlorid, exposed for nine months, gives a copious precipitate in a white, blue or green bottle, but if kept in an amber bottle, gives no precipitate. The list of substances whose keeping properties are materially affected by light is long—longer indeed, than most pharmacists realize.—*Red Cross Notes (Dental Cosmos)*.

SEPARATING VARNISH.—While the following formula for separating varnish is not new, it may be unfamiliar to some:

Shellac,	6 ounces;
Borax.	3 ounces;
Water,	1 quart.

Sig.—Dissolve the borax in the water, bring to a boil, and add the shellac.—A. DAUGHADAY, *Western Dental Journal*.

REPAIRING GUM SECTION.—To repair a broken tooth in a gum section, grind out the broken tooth from the section, even with the gingival margin, then select a plain vulcanite tooth of proper size and shade, and grind to fit the space. Pack in fresh vulcanite around the pins of the tooth and vulcanize as an ordinary repair case. If a little care has been used in making the joint at the gingival line, the job cannot be detected from a full new block.—F. H. WILKINSON, *Dental Summary*.

DISH FOR ACID BOTTLES.—Set your laboratory acid bottles in a glass dish or granite or other glazed tray, first covering the bottom with a thin layer of washing soda. The last-mentioned article takes up the drip from the neck of the bottles, also to some degree the heavy fumes. If it is desired to have a dish to each bottle, the sponge dishes in use by bank cashiers and dentists generally when counting their money, answer the purpose perfectly.—*Dental Office and Lab*.

ACCIDENTS.—April 21st a vulcanizer exploded in the office of Dr. A. B. Wark, at West Derry, N. H. Some damage was done to the office, but no one was injured.—Emmet Greene of Osage, a dental student at the State University, fractured his skull and received internal injuries from a fall into the amphitheater of the medical building.—Dr. Fred A. Root of Toledo, Ohio, narrowly escaped death, April 27. He was dragged two hundred feet with his body between the front wheels and fender of a street car.

SLEEPLESSNESS.—Sleeplessness is the result of over bodily or mental effort. When a man works beyond his strength, or thinks or studies more than rest can restore, then, sooner or later, comes that inability to sleep soundly, that wakefulness, which is more wearing than bodily labor, and which feeds the debility which first gave rise to it. The result is, a man is always tired, never feels rested, even when he leaves his bed in the morning; hence he wastes away, and finds repose only in the grave, if indeed insanity does not supervene. It is too often a malady remediless by medical means. Avoid, then, as you would a viper or a murderer, all over-effort of mind and body. It is suicidal. Whatever you do, get enough sleep; whatever you do, take enough rest to restore the used energies of each preceding twenty-four hours. If you do not, you may escape for a

few months, and if possessing a good constitution, years may pass away before any decided ill result forces itself on your attention; but rest assured the time will come when the too-often baffled system, like a baffled horse, will refuse to work. It will not take prompt and sound sleep, it will not be rested by repose, and that irritating wakefulness will come upon you which philosophy cannot conquer, which medicine cannot cure.—*Med. Chir. Journal*.

GOLD INLAYS.—Filling with inlays does away with the long and tedious sittings which are necessary when restoring large portions of tooth structure with cohesive gold or its combinations. In many instances these long sittings have precluded the use of gold entirely, because of the physical inability of the patient to endure such trying operations, while the fearful strain on the operator has been such in some cases as to deter him from attempting extensive restorations.—THOS. P. HINMAN, *Items of Interest*.

FOR SORE AND SPONGY GUMS.—A useful mouth-wash is made with tincture of myrrh, a dram to a tumblerful of water; or tincture of iodine (two to four drams in eight ounces of water) with tannin. Bartholow employed a mouth-wash of one dram of tannic acid, two ounces of honey of rose, and four ounces of water. Davis recommends a weak solution of thymol, boric acid, or carbolic acid; also a weak galvanic current for seven to ten minutes through the parotid and salivary glands.—*Denver Med. Times (Dental Cosmos)*.

TO REPLACE TOOTH ON VULCANITE PLATE.—When a plain tooth is to be replaced on a rubber plate, cut out a dovetail in the rubber, back of the place where the tooth is to go. Paint the back of the tooth and the space in the rubber with rubber cement. This is made by dissolving red rubber in chloroform. Place the tooth in position and pack the space with a piece of new rubber, using a warm spatula. Invest and vulcanize. Two or three plates could be invested in one flask, if necessary, as the flask does not have to be separated.—H. T. HARVEY, *Western Dental Journal*.

PURIFYING GOLD SCRAP.—If all dentists would practice the United States mint method they would not have to sell gold scrap at a loss.

Have a bottle of nitric acid and another of hydrochloric acid and mix when used. To one part nitric acid add from two to two and one-half to three parts hydrochloric acid. Then add gold scraps of all carats. After gold is dissolved, pour off gold acid from the white silver powder deposit, then thoroughly dilute the gold acid with water, which should turn an orange color. Make a saturated solution of green copperas and add to the diluted gold acid, which should turn a dark brown, muddy color. Set aside until clear and the gold will be deposited as a brown powder; pour off liquid and wash gold several times in hot water, then pour sulphuric acid over gold and let stand for a few hours, which will dissolve any iron wire, etc.; then wash and place gold powder and flux on depression in flat piece of charcoal and cover with another piece, then melt with blow pipe. The gold will be pure, unless scraps from gold money is used, then the copper will remain, which a dentist has not heat enough at his com-

mand to remove. The gold sold at the depots contains silver, and, treated by this method, the result would be pure gold. Then reduce with silver to carat wanted. The gold acid will stain the fingers, so you should wear gloves at this work.—*Texas Dent. Jour.*

OCLUSION AND ARTICULATION.—The terms occlusion and articulation should be understood thoroughly, as they are frequently used synonymously. Occlusion signifies rest, a passive condition when the condyles are in their sockets and the teeth locked by the bite, the upper third molars being in contact with only one opposing tooth, and the lower incisors underbiting but not in contact with the upper. Articulation, on the contrary, expresses motion and is an active condition. It includes all the positions which the teeth may assume during any of the movements of the mandible.—**HAROLD DE WITT CROSS**, *Dental Cosmos*.

DIVORCES.—Dr. Jerome W. Egbert of Chicago brought suit for divorce against his wife.—W. S. Parker, a dentist of Pasadena, Cal., recently brought suit against his wife for divorce.—Mrs. M. Hubler will start a divorce suit against her husband, a dentist of Minot, Minn.—April 24th, J. A. Parr, a dentist of Lebanon, Ind., brought suit for divorce against his wife.—Mrs. Smith brought suit against her husband, a dentist of Bloomington, Ill.—Dr. Herbert Stoddard of Wanatah, Ind., secured a divorce from his wife April 11.—Mrs. Anna K. Henninger has secured a divorce from her husband, a dentist of Chicago, Ill.

ROBBERIES.—Allan S. MacDougal, Brooklyn, N. Y., April 9, a number of valuable instruments, gold for filling and teeth, all valued at \$163.—J. O. Newton, Columbus, Ohio, April 28, about \$20 in money.—C. G. Colby and F. C. Hotchkiss of Bridgeport, Conn., April 16, gold to the value of about \$100.—R. O. Hirschi, Guthrie, O. T., gold valued at \$30.—Dr. Pendleton, Norman, O. T., gold and silver alloy valued at \$100.—E. J. Miller, St. Louis, Mo., April 20, \$50 worth of artificial teeth.—Ross J. Wilson, Ardmore, I. T., \$100 in money and \$200 diamond.—E. E. Sulsberger, Bellaire, Ohio, gold, dental materials and a number of tools, valued at \$25.

SALICYLIC IONIZATION IN AN OBSTINATE CASE OF TIC DOULOUREUX.—Professor S. Leduc of Nantes (*La Semaine médicale*, November 22) reported last year several cases in which he had obtained excellent results in neuralgia by electrolytic introduction of salicylic ions (galvanic cataphoresis). Recently he has again resorted to this method with success in a case of tic douloureux of thirty-five years' standing. It affected all of the right side of the face, and the pain was constant. Frequent crises occurred, which were so severe that the patient lost flesh and his face constantly bore the appearance of acute suffering. He was cured, according to Dr. Leduc, with three treatments of salicylic ionization. The method followed was to apply the cathode, moistened with a solution of sodium salicylate, to the right side of the face, and at the first treatment the current was raised gradually to an intensity of 45 milliamperes and maintained for forty minutes. After the second treatment, which took place three days later (when the current was allowed to pass for one hour, with

a current of 35 milliamperes), he experienced marked improvement. The pain now returned only during exposure to cold. Finally, a third and last ionization of forty minutes brought about a final cessation of the pain. From that time the patient's condition has been remarkably improved, and he has regained considerable flesh.—*New York Med. Journal (Dental Cosmos)*.

SHE PREFERRED TO WALK OFF ALIVE.—People fought shy of the anesthetic when it was first discovered, and some of them may have had the feeling of a stout negro woman who appeared in a dental room with a swollen jaw and the woebegone look with which every dentist must be familiar. Knowing that the process of extracting the troublesome tooth would be a painful one, the dentist suggested to his patient that she take gas, to which she said with decision:

"No, sah; no, sah; yo' don't git this chile to tek none ob yo' ole gas and walk out of dis chair daid when the tooth is out—no sah!"—*Exch.*

TO PREVENT BREAKING OF DONALDSON NERVE BROACHES.—Did you ever break a broach the first time you used it? Very rarely, if ever; and this is true from the fact that it was perfectly free from rust. "Three in One," the greatest of all non-rust lubricants, is the remedy. After having used the broach, cleanse the delicate barbs by dipping them into a liquid disinfectant and pushing, *not pulling*, through a steel wire engine brush to remove all debris; then dip it into the "Three in One" and the next time you use it you can feel safe from the end breaking off.—R. B. COLVIN, D.D.S., *Dental Brief*.

CARE OF THE HANDPIECE.—I happened to be in Dr. J. D. Patterson's office at the close of the day's work, and was much pleased with the care he gave his handpiece.

The jacket was taken off and the bearings carefully cleaned. Then the jacket and spindle were placed in a drawer separately for a night's rest. In the morning a drop of oil, the parts put together and "it's just like new," ready for better work. Try it, and if you have been having trouble with your handpiece, you will find very little of it present. Also adjust the bearings when needed.—F. O. HETRICK, *Western Dental Journal*.

MARRIAGES.—James B. Williams, a dentist of Bridgeport, Conn., was married to Miss Bessie Clinton, of Bridgeport, April 24.—Edward V. M. Thompson, a dentist of Toledo, O., was married to Miss Florence Hovey of Urbana, April 17.—Charles E. Klopp, a dentist of Alpena, Mich., was married to Miss Lillian Austin of Naperville, Ill., April 4.—E. J. Dykeman, a dentist of Willshire, O., was married to Miss Pauline Genn, April 28.—George B. Bleiler, a dentist of Allentown, Pa., was married to Miss Rose B. Schaeffer of Reading, April 14.—Charles E. Stein, a dentist of Nazareth, Pa., was married to Miss Lottie Koch of Nazareth.—W. G. Atkinson, a dentist of Goshen, Ind., was married to Miss Etta Cowdery of Goshen, April 18.—William A. Reynolds, a dentist of Cape Girardeau, Mo., was married to Miss Natalie A. Murdock of Marble Hill, Mo., April 13.—Dr. Buford, a dentist of Eufaula, I. T., was married to Miss Marcella Fossick, Sheffield,

Ala., April 16.—Walter J. Faunce, a dentist of Roxbury, Mass., was married to Miss Mary Josephine Fitzsimmons of Boston, Mass., April 19.—R. C. Richardson, a dentist of Burkesville, Ky., was married to Miss Agnes Owsley of Burkesville, April 29.—Frank W. Montgomery, a dentist of North Adams, Mass., was married to Miss Bessie K. Blanshan of North Adams, April 16.—John Nelson Wigginton, a dentist of Waukesha, Wis., was married to Miss Florence Esther Kerr of Alpena, Mich., April 18.

SILVER NITRATE WITH CEMENT FILLINGS.—A cement filling, zinc oxyphosphate, placed upon a surface treated with silver nitrate, will, for some reason, last a great deal longer and will be a great deal better mass than the same mass not having the peculiar effect it gets from this film of silver albuminate. A great many, no doubt, have seen the effect of silver nitrate upon a surface which has been infected to a very slight depth. That in time will become a polished black surface and further decay will never result. Now, if in deeper cavities we can make partial preparation and apply silver nitrate, and have it last longer than otherwise, it is worth knowing.—W. V-B. AMES, *Dental Review*.

ILLEGAL PRACTITIONERS.—A dentist at Brooklyn, N. Y., was charged with practicing dentistry without a license, April 25, 1906.—A dentist in Cripple Creek, Colo., has been charged in two cases of practicing dentistry without license.—April 18th a dentist of Boston, Mass., was fined \$50 for allowing an unregistered dentist to practice in his place.—At Joliet a dentist was fined for practicing dentistry without a license.—Three men of Fayetteville, W. Va., were convicted of practicing without licenses, April 18, 1906.—April 9th a dentist of Los Angeles, Cal., was fined \$50 for practicing dentistry without license.—April 13 two men of Boston, Mass., were arrested for practicing dentistry without certificates.

A METHOD OF MANIPULATING A POSITIVE MATRIX FOR INLAY WORK.—In describing what I have termed a method of manipulating a positive matrix for inlay work, I always prepare the cavity in such a manner that an impression can be taken that will readily draw. From the impression taken in modeling composition, the matrix is first outlined over it, in order that it may be readily introduced into the cavity without puncturing or warping it, and with sufficient margins all around the border. With cotton pellets and burnishers I thoroughly adapt the matrix to the cavity, and after removing all cotton, force the modeling-impression—first taking the precaution to slightly oil it—into the cavity and over the matrix and firmly swage it by use of the fingers and suitable appliances. The impression and matrix are removed and together invested in a small platinum tray, in three parts powdered silex to one of plaster mixed with water to a proper consistence. The investment is practically non-shrinkable, and will withstand the heat for any number of bakings required to complete the inlay. This method gives a matrix that is in positive contact with all the points of the cavity, and eliminates direct handling of the matrix with the fingers or instruments up to the completed inlay.—F. S. MORRISON, *Dental Summary*.

ARSENICAL PULP DEVITALIZATION.—For some time past I have used an arsenical powder with satisfactory results, the liquid preparations being uncleanly and sloppy, with tendency to oozing at the gum line:

Acidi arsenosi (finely powdered)	5i
Cocain hydrochlor.	grs. ii
Acidi tannici	grs. vi
Carmines	q. s. (gr. i)

Soak a piece of bibulous paper in creosote and take a portion from the base of the bottle. I believe the creosote causes the drug to penetrate more deeply into the pulp tissue.—FREDERICK LONNON, *British Dental Journal*.

OPERATIVE PROCEDURE FOR EXCAVATING SENSITIVE CAVITIES.—There is a distinct difference in the sensitiveness, dependent on the manner in which the dentin is cut. Success in many cases may be achieved by cutting the dentin in the following manner: Instead of using the usual bur and cutting transversely, cut vertically to the axis of the dentin, and with a drill with a flat point cut a series of small holes, and the operation can then be continued with half the pain that would be otherwise occasioned. What generally troubles most people is to get an anchorage, but by drilling a series of small holes the dentin may be cut with very little pain compared to that caused by using a drill in the ordinary manner.—H. L. SCHAFFNER, Florence, Italy, *Dental Review*.

ETHICS IN DENTISTRY.—There is no line in dentistry that is more difficult to draw than the line that divides the ethical from the unethical man. The man, his surroundings, the customs prevailing in the profession at the time and the condition of the public mind must all play a part. As we advance, as a profession, our ideas of what constitutes ethical practice will change to correspond. I wish to suggest that in each community at such a time every year, when our new graduates are entering upon their life work, members of our societies should call upon each one as early as possible and invite him to join in society work and sign the code of ethics before he has time to think of advertising. Get them before they take the wayward step and they will become an example in the community.—ARTHUR D. BLACK, *Review*.

SILVER NITRATE.—About twelve years ago I began using silver nitrate, at first carefully, as I had some fear of its deep staining properties, but later I used it freely, and for ten years I have made it a rule to see that all the teeth back of the canines were given a good treatment of the saturated solution as soon as possible after eruption. I simply dry off the surfaces and put on the solution with a small swab, letting it stay a minute, during which time I push it with an explorer down into the sulci. I wish to give this as an invariable rule, carried out with great success for this length of time. The staining is only superficial, and caries is generally prevented; in cases where it does occur it is greatly delayed. Teeth given this treatment need as careful watching as if untreated, for in a few cases it seemed that the nitrate did not reach the deep-seated structures, and

decay went on without any apparent sign of its presence. Our big operations give a certain satisfaction, but it is not to be compared to that of feeling that we have actually kept the teeth from the ravages of caries.—

HARRY F. HAMILTON, *Internat. Dental Journal*.

SODIUM PERBORATE.—The preparations of H_2O_2 usually employed possess the disadvantage of being acid in reaction. Sodium perborate offers advantages of the highest order. It is of alkaline reaction and perfectly stable and can be preserved indefinitely even when exposed to the air or kept in unstoppered bottles. One kilogram contains 104 grains of active oxygen which becomes available on mixing with distilled water. It may be used in solution or in powdered form, as when in contact with the tissues, inflamed or normal, a sufficient amount of humidity is always present to cause the evolution of oxygen.—*L'Odontologie (Dental Brief)*.

HOW TO IMPROVE YOUR CROWN AND BRIDGE ARTICULATOR.—The ordinary crown and bridge articulators now on the market have but one movement, namely, vertical. By the use of the mechanical saw and a few minutes of your spare time, enlarge the hole for the pin backwards say one-quarter of an inch, making a slit for the pin to slide back and forth. Do the same on both sides, but only in the one piece (lower), and fasten a small rubber band to each end of the pin, allowing it to pass around in front. This elastic band will keep the articulator in a given position when at rest, but can easily be moved to give any desired position, vertical, lateral and anterior-posterior movements, which correspond to the movements of the jaws. This simple method will save the trouble and time of making the plaster articulator and is much better.—A. F. DONAHOWER, *Dental Brief*.

TO REMOVE A MORBID GROWTH OF GUM TISSUE FROM A CAVITY.—Frequently we have cases when a morbid growth of gum tissue fills, or partially fills, a cavity. Its removal is not only somewhat painful, but it is also a mean piece of work to cut it away on account of the excessive hemorrhage. In the majority of such cases it can be removed neatly and with dispatch, painlessly and bloodlessly, by ligating with a piece of silk to either the tooth with the cavity or the adjoining one, whichever is the most convenient. This cuts off the blood supply and reduces to a minimum the pain when cutting away the growth with a side motion of a small flat burnisher or other suitable instrument. If a bad case, touch with trichloroacetic acid. For those who have not tried this method of removing this troublesome growth the result will be surprising.—*Dental Office and Lab*.

WHAT IS LIFE?—The universe pays every man in his own coin; if you smile it smiles upon you in return; if you frown you will be frowned at; if you sing you will be invited into gay company; if you think you will be entertained by thinkers; and if you love the world and earnestly seek for the good that is therein, you will be surrounded by loving friends and nature will pour into your lap the treasures of the earth. Censure, criticize and hate, and you will be censured, criticized and hated by your fellow-men. Every seed brings forth after its kind. Mistrust begets mistrust; jealousy begets jealousy; hatred begets hatred; confidence begets

confidence; love begets love. Resist and you will be resisted. To meet the aggressive assault every entity rises up rigid and impenetrable—while yonder mountain of granite melts and floats away on the bosom of the river of love.—*How to Live.*

TABLE OF POPULATIONS IN VARIOUS STATES AS COMPARED WITH THE MEDICAL AND DENTAL PROFESSIONS.—The following, taken from the census report of 1900, gives the number of inhabitants to each physician and dentist in all States and territories of the Union:

	One physician to inhabitants	One dentist to inhabitants.
Maine	611	2092
New Hampshire	577	2144
Vermont	477	2354
Massachusetts	575	2087
Rhode Island	678	2801
Connecticut	644	2530
New Jersey	881	3782
Delaware	650	3849
Maryland	528	3362
District of Columbia	389	1250
New York	596	2784
Pennsylvania	693	3024
Virginia	828	3459
West Virginia	703	4700
North Carolina	1142	7730
South Carolina	1006	7446
Georgia	879	4254
Florida	780	4636
Kentucky	47	5017
Tennessee	572	4916
Alabama	918	6489
Mississippi	1548	6437
Louisiana	997	5418
Missouri	543	3319
Arkansas	569	9861
Texas	632	5656
Ohio	529	2742
Indiana	519	3311
Illinois	583	2507
Michigan	575	3049
Wisconsin	909	3088
Minnesota	1115	4597
Iowa	562	2845
Kansas	510	4007
Nebraska	745	4063
North Dakota	1347	6803

	One physician to inhabitants.	One dentist to inhabitants.
South Dakota	947	5501
Montana	851	2863
Wyoming	1064	4206
Colorado	461	2727
New Mexico	1406	9765
Arizona	860	5122
Utah	1033	2562
Nevada	770	2822
California	329	1567
Oregon	676	2377
Washington	792	3321
Idaho	914	2696
Indian Territory	693	10,050
Oklahoma	831	10,480

ANTISEPTIC MOUTH-WASHES.—

Carbolic Acid.

R—Carbolic acid,	2 parts;
Glycerin,	3 parts;
Chloroform,	1 part.

Sig.—Five to ten drops in a wineglassful of warm water.

Benzoic Acid.

R—Benzoic acid,	5 grains;
Thymol,	1 grain;
Ol. menth. pip.,	8 drops;
Tr. eucalypt.,	1 dram;
Alcohol,	1 ounce.

Sig.—A teaspoonful to a tumbler of warm water.

Salicylic Acid.

R—Salicylic acid,	10 grains;
Ess. menth. pip.,	10 drops;
Tr. lavand comp.,	20 drops;
S. V. R.,	½ ounce.
Aquam ad,	1 ounce.

Sig.—A teaspoonful to a tumbler of warm water.—*Medical Times (Dental Cosmos).*

LITTLE JOHNNY ON DENTISTS.—Dentists is men that put you in a chare and make you squeel if you ain't pretty gaim. I am gaim bekaus I never squeeled once when the dentist was poking an iron in my jaw, but I wanted to squeel to, when you go to a dentist he will say Well, what can I do for you and you say My tooth is aking and he will say That is too bad, git in this chare and we will se what we can do, then he taiks a iron that is awful sharp and puts it on the edge of the hole in yure tooth and its slips off sumtimes and goes away into your jaw and he says Oh i beg yure pardon, my nerves are bad this morning, then he looks around

in yure mouth & says Dear me, there is quiet a lot of work needs to be done on yure teeth, and here is a cavity and here is anuther and here is five moar, then he says I will go ahead & fix yure teeth up and maik it reasonably & he does it and then when he sends you the bill you faint nearly.

dentist maik false teeth too, my Ma has false teeth & they are always nise and white. Pa says they ought to be when they cost him a months sallery neerly.

but I think dentists are much moar on the square than doctors.—*Exch.*

A CASE OF HYPERTROPHY OF THE GUM.—By A. Ironside. The author reports the case of a school teacher aged 29 who presented himself at the Royal Dental Hospital of London for the treatment of a marked hypertrophic condition of the gingivæ in the maxilla, especially in the incisor region, where the lateral incisor was almost hidden from view by the abnormal growth. The treatment consisted in removing all salivary deposits, cleaning the surfaces of the teeth, removing all decayed root fragments and in packing the gum pockets with copper sulfate. Between treatments the patient was directed to rub the gum with tannic acid and to use night and morning the following mouth-wash:

R—Acid carbolici,	℥ss;
Liquor potassæ,	℥ss;
Glycerinæ,	℥j;
Aquæ,	ad ℥vj. M.

Sig.—One teaspoonful in a tumbler of water.

The systemic treatment consisted in the administration of the following preparation:

R—Potassii chloratis,	gr. ij;
Tincture capsici,	mx. ss;
Tincture cardamomi comp.,	mx. xx;
Aquæ chloroform,	ad ℥ss. M.

Sig.—To be taken three times a day after meals.

The main features of the treatment were: (1) Local depletion of the hypertrophied tissues; (2) the application of tannin to the gums; (3) the frequent scaling of the teeth and packing of the gum pockets with copper sulfate; (4) the internal administration of potassium chlorate, and (5) on the part of the patient diligent cleaning of the teeth.

Since the treatment of true hypertrophy is, according to the author, somewhat radical, i. e., excising the alveolar margin, the above treatment might in all cases be given a preliminary trial. In the reviewer's opinion not all cases of true hypertrophy of the gum require surgical treatment, for, as he has elsewhere pointed out, "In very extensive cases involving practically all of the gum area, removal by surgical means is indicated, but in those in which the flap of tissue is apparently an outgrowth from the underlying normal gum structure, cauterizations with 50 per cent trichloroacetic acid upon alternate days has given the writer most successful results in two cases in which the growths were of the hyperplastic variety."—*Dental Record, London. (Dental Cosmos.)*